

**NATIONAL UNIVERSITY OF LIFE  
AND ENVIRONMENTAL SCIENCES OF UKRAINE**

**BACHELOR CURRICULA  
AND  
TRAINING PROGRAMS**

**2017-2018  
academic year**

**2017**

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# **1. General Information About The National University of Life and Environmental Sciences of Ukraine**

- 1.1. Historical Brief
- 1.2. The concept and objectives of educational activities
- 1.3. Specialties for Bachelor's degree
- 1.4. Admission rules
- 1.5. Organization of academic process
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### 1.1. Historical brief

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

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

The history of the National University of Life and Environmental Sciences of Ukraine originated from Agricultural department and Veterinary faculty of Kyiv Polytechnic Institute, Department of Forestry of Agricultural Institute in Marimont (Poland).

The agricultural department of Kyiv Polytechnic institute (opened in August 31, 1898) transformed into Agricultural (Agronomic) faculty in 1918, and later in 1922 into Kyiv Agricultural Institute. In 1923, it became an independent higher educational institution.

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.

In 1926-1929, architect D.M. Diachenko designed the first educational buildings in Golosiievo in the style of Ukrainian Baroque.

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 its 50th anniversary, the institute was awarded with the Order of the Red Banner for outstanding achievements in teaching and research work.

Kyiv Forestry Institute began its history from the Warsaw forest school 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 1954, Kyiv Agricultural Institute and Kyiv Forestry Institute merged into the institution "Ukrainian Agricultural Academy of the Order of the Red Banner" (the UAA).

In the 1950s, the 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

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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 it 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 Agrarian University.

According to the Resolution of the Cabinet of Ministers of Ukraine from 29 May 1997 № 526, Berezhany Agricultural College (Ternopil region), Zalizhchyky (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, Zalizhchyky 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 property complex of state poultry breeding plant named after Frunze (Crimea) was transferred to NAU as training and research farm. The same year, on the basis of the Crimean State Agrotechnological University it was decided to organize the Southern Filial «Crimean Agrotechnological University" (Simferopol), Crimean Agroindustrial College, Bakhchisaray Construction College; Prybrehzhne Agricultural College, College of hydro melioration and mechanization of agriculture. 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.

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.

Since 2016, "Rivne College of NULES of Ukraine" has become the separated subdivision.

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 has been clearly outlined in the Program of development of NULES of Ukraine for 2015-2020 "Holosiivska Initiative - 2020". The realization of the Program is to consolidate 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.

## 1.2. The concept and objectives of educational activities

**The concept of educational activities of the National University of Life and Environmental Sciences of Ukraine (NULES of Ukraine)** is determined by its **status as a research university**. It conducts educational, research, scientific, innovation, production and consultancy activities aimed to develop modern approaches to problems of life and environmental sciences, the use, reproduction and sustainable development of biological resources in soil and aquatic ecosystems, introduction of new environmental agro-biotechnology, technologies of soil safety and fertility, energy saving agricultural technologies, environmental and legal management in rural areas, monitoring and enforcement of standards, quality and safety of agricultural products, processing technologies and the environment.

The University aims to meet the educational needs of individuals, society and the state in accordance with the Constitution of Ukraine, Laws of Ukraine **"On Education", "On Higher Education", "Regulations on organization of the academic process in National University of Life and Environmental Sciences of Ukraine"**.

NULES of Ukraine as a research university conducts its activities in accordance with the European scientific and educational requirements and standards, participates in research programs and projects, including international cooperation with leading foreign universities and authoritative overseas partners.

Educational activities at the university are secular in nature, independent from political, civic and religious interference. The main objective of the university is to further integrate into the global educational system and achieve the international status.

NULES of Ukraine is a higher educational institution of the IV accreditation level and enjoys the right to train specialists in the following educational and qualification levels:

- Junior specialist – 26 specialties;
- Bachelor – 32 specialties;
- Specialist – 13 specialties;
- Master – 32 specialties and more than 60 educational programs.

The basic institution of the University (Kyiv) implements the degree system of training "bachelor – master". In addition, the university offers training for candidates and doctors of sciences in 34 specialties, as well as retraining and advanced training of specialists for the agricultural sector.

Over 31,000 students study at 13 faculties and 3 education and research institutes (ERI) of the basic institution of the University (Kyiv) and 11 separated subdivisions of NULES of Ukraine – regional higher educational institutions of II – III accreditation levels.

**The concept of educational activities at the university is grounded on the following principles:**

- access to higher education for individuals who meet the requirements of professional selection (competition) considering the existing benefits for rural youth and those living in the areas contaminated as a result of the Chernobyl catastrophe;
  - equality of conditions for any student, learner, postgraduate, doctoral candidate in order to realize their abilities, talent, all-round personal development;
  - transparency of higher educational institution, creation of preconditions for selecting the specialty and form of training;
  - the priority of universal spiritual values, humanism and democracy in the academic process;
  - logical unity and continuity of the academic process and its integration with science and production;
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- correspondence of the educational level to the international requirements;
- open competition and contracts for vacancy positions of heads of departments, deans, professors, associate professors and other employees.

**The main objectives of the educational activities at the university are:**

- organization of the academic process through innovative master and postgraduate programs of advanced scientific and professional training of masters, candidates of sciences (Doctors of Philosophy) and doctors of sciences for scientific and pedagogical activities at universities, research institutions and high-tech science-intensive industries;
- introduction of training for masters and PhDs, teaching and research staff of the University on the basis of personal research activities through close integration of research activities with the academic process and providing in-depth fundamental component in teaching and research;
- strengthening and effective use of human resources, scientific, educational and research potential of the University through carrying out efficient, high-level research and training process;
- development and implementation of new integrated technologies, methods, technical means into the training process;
- integration of education with science and industry in the framework of the educational, scientific and production associations (including interdisciplinary), basic departments, their subdivisions in the institutions of the NAS and NAAS of Ukraine and other academic institutions for teaching and research;
- staff training for innovative development of Ukraine on the basis of creativity, information technology competence, methods of development, use and protection of intellectual property, basics of innovation management, marketing, product innovation, commercialization of scientific and technological developments;
- ensuring a high level of employment for graduates, young scientists with advanced scientific, research and technical training as scientists, university lecturers, developers of new techniques and technologies, managers of scientific and technological business and public administration in education, science and technology;
- involving students into research, development and implementation of complex scientific and technical knowledge intensive systems as a component of the academic process;
- ensuring high requirements for competitive selection of the teaching staff taking into consideration their scientific achievements;
- development of a virtual educational and scientific information environment by involving all academic and research subdivisions of the University and ensuring the access of all participants of the academic process to it;
- advanced training of managers and professionals of organizations, enterprises and institutions who carry out research and implement the results of technological achievements of the University;
- promoting the spiritual and cultural development of society, shaping the country's knowledge base, developing high-tech industries and innovative business environment.

**The academic process at the University is based** on a systems approach to foster students' broadmindedness, original thinking and ability to solve industrial and socio-economic problems.

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The educational process is an integral part of academic activities and provides education of future professionals in the best traditions of national and world culture based on common priorities, renewal and development of the national economy, culture, science and spiritual unity of the nation and the people living in Ukraine.

One of the key areas of strategic objectives of the University is development of a new mechanism of interaction of all participants in the academic and educational process, based on respect for the principle of the unity of their interests, educational opportunities and personality needs.

**The main objectives of the academic and methodological activity in the context of implementation of degree education system are:**

- development of a professional of XXI century model and the requirements to the level of professional knowledge, capacity for self-learning, flexibility in market conditions and self-development;
- involvement of the University staff into the scientific-methodological commission of the Ministry of Education and Science of Ukraine and the Ministry of Agrarian Policy and Food of Ukraine engaged in improvement of organizational and methodological support of the academic process, developing branch standards for higher education;
- creation of scientific-methodological complexes in the fields of training (specialties) and discipline teaching methods based on advanced educational technologies and related educational and laboratory facilities;
- compliance with the state standards of higher education;
- adaptation of scientific and methodological literature written by the University staff to the requirements of international standards of WTO and the European Union;
- determining the content and forms of academic activity for various stages of training and certification;
- identifying the content and character of graduates employment in order to make amendments and additions to the content of curricula and organization of the academic process;
- development of guidelines and forms of rating system, assessment criteria, tests to determine the level of professional knowledge, competences and skills;
- development of new information and communication systems to support the academic process.

### 1.3. Specialties for Bachelor's degree

The National University of Life and Environmental Sciences of Ukraine trains bachelors in the following specialties:

*Accounting and Taxation, Agricultural Engineering, Agronomy, Automation and Computer Integrated Technologies, Banking and Insurance, Biotechnology and Bioengineering, Computer Engineering, Computer Science and Information Technologies, Construction and Civil Engineering, Ecology, Economy, Finance, Food Technologies, Forestry Management, Geodesy and Land Management, Horticulture and Viticulture, Industrial Mechanical Engineering, International Relations, Social Communications and Regional Studies, Law, Management, Marketing, Park and Gardening Management, Philology (English), Philology (German), Plant Protection and Plant Quarantine, Power Engineering, Electrical Engineering and Electrical Mechanics, Professional Education, Social Work, Software Engineering, Technology of Production and Processing of Livestock Products, Tourism, Transport Technologies (Motor Transport), Veterinary Medicine, Water Bioresources and Aquaculture.*

**Bachelor's degree** is an educational degree (ED) in higher education that can be obtained by a person at the first level of higher education. The higher educational institution confers Bachelor's degree to a seeker upon completion of educational and professional program (180-240 credits ECTS). The extent of educational and professional program for Bachelor's degree on the basis of Junior bachelor's degree (EQL Junior specialist) is determined by a higher educational institution.

A person can apply for Bachelor's degree training providing he/she has obtained a complete general secondary education.

The first (bachelor) level of higher education corresponds to the sixth qualification level of National Qualifications Framework (the Resolution of the Cabinet of Ministers of Ukraine № 1341 from 23.11.2011) – the structural unit determined by a certain set of competencies typical for this qualification level.

#### Description of the the sixth qualification level

Level	Knowledge	Skills	Communication	Autonomy and responsibility
1	2	3	4	6
6	Ability to solve complex specialized tasks and practical problems in a particular area of professional activity or in the learning process, which involves the use of certain theories and methods of relevant science and is characterized by complexity and uncertainty of conditions.			
	Conceptual knowledge acquired in the process of training and professional activity, including certain knowledge of modern achievements	Solving complex and unforeseen problems in specialized areas of professional activity and / or training, which involves collecting and interpreting information (data), choice of methods and tools, the use of innovative approaches	presenting information, ideas, problems, solutions and one's own experience in the field of professional activity to specialists and non-specialists	Management of complex projects or actions, responsibility for decision-making in unpredictable conditions

1	2	3	4	6
	Critical awareness of basic theories, principles, methods and concepts in education and professional activity		ability to form effective communication strategy	responsibility for professional development of individuals and / or groups  ability to life-long learning with a high degree of autonomy

Educational and professional training program provides obtaining higher education in the field of training (specialty) and relevant qualification.

Educational and professional program is a system of educational components on the first (bachelor) level of higher education within the specialty that defines requirements for education of persons who can start training in this program. The list of disciplines and the logical sequence of their study, the number of European credit transfer-accumulation system (hereinafter – ECTS) required by the program as well as the expected learning outcomes (competences) that the applicant for Bachelor's degree should master.

Individuals who successfully completed educational and professional training program for Bachelor's degree and passed state certification, obtain standard documents about higher education in the relevant field of study and Bachelor's degree qualifications. Bachelors are trained at the faculties of the basic institution of the University (Kyiv) and in separated subdivisions (SS) of NULES of Ukraine - higher educational institutions of II-III accreditation levels (Table 1.1). Training in all subdivisions is realized according to agreed curricula and programs, involving the teaching staff of the basic institution of the university to give lectures at separated subdivisions of the university. This makes it possible to successfully implement a degree system, create favorable conditions for capable students.

**Table 1.1. Specialties for Bachelor's Degree**

№	Code, Specialty	Departments that provide Bachelor degree training and licensed number (full-time/part-time, persons)	
		Faculties and ERI of the basic institution	SS of NULESU
1	2	3	4
1	015 Professional Education	Humanitarian Pedagogical (50/-)	–
2	035 Philology (English) 035 Philology (German)	Humanitarian Pedagogical (35/20) (15/5)	–
3	051 Economy	Economic (150/110)	Berezhany agrotechnical institute (40/200)
4	071 Accounting and Taxation	Economic (150/140)	Berezhany agrotechnical institute (60/60) Nizhyn agrotechnical institute (40/25)
5	072 Finance, Banking and Insurance	Economic (130/90)	–
6	073 Management	Agrarian Management (150/60)	Nizhyn agrotechnical institute (30/25)

Table 1.1 Continuation

1	2	3	4
7	075 Marketing	Agrarian Management (60/60)	–
8	081 Law	Law (75/115)	–
9	101 Ecology	Plant Protection, Biotechnology and Ecology (75/75)	Berezhany agrotechnical institute (30/30)
10	121 Software Engineering	Information Technologies (50/50)	–
11	122 Computer Science and Information Technologies	Information Technologies (50/50)	–
12	123 Computer Engineering	Information Technologies (50/50)	–
13	133 Industrial Mechanical Engineering	Construction and Design (170/120)	–
14	141 Power Engineering, Electrical Engineering and Electrical Mechanics	Energetics, Automation and Energy-saving (175/120)	Berezhany agrotechnical institute (75/100) Nizhyn agrotechnical institute (60/60) Nemishayevo Agrotechnical College (50/50)
15	151 Automation and Computer Integrated Technologies	Energetics, Automation and Energy Saving (50/35)	–
16	162 Biotechnology and Bioengineering	Plant Protection, Biotechnology and Ecology (100/50)	–
17	181 Food Technologies	Food Technologies and Quality Management of AIC Products (100/100)	–
18	192 Construction and Civil Engineering	Construction and Design (50/50)	–
19	193 Geodesy and Land Management	Land Management (90/85)	–
20	201 Agronomy	Agrobiology (190/120)	–
21	202 Plant Protection and Plant Quarantine	Plant Protection, Biotechnology and Ecology (75/50)	–
22	203 Horticulture and Viticulture	Agrobiology (60/30)	–
23	204 Technology of Production and Processing of Livestock Products	Livestock and Water Bioresources (125/60)	–
24	205 Forestry Management	Forestry, Park and Gardening Management (175/240)	–
25	206 Park and Gardening Management	Forestry, Park and Gardening Management (175/240)	Berezhany agrotechnical institute (30/30)
26	207 Water Bioresources and Aquaculture	Livestock and Water Bioresources (75/75)	–
27	208 Agricultural Engineering	Mechanics – Technology (200/200)	Berezhany agrotechnical institute (75/100) Nizhyn agrotechnical institute (75/75) Nemishayevo Agrotechnical College (50/40)
28	211 Veterinary Medicine	Veterinary Medicine (250/-)	–
29	231 Social Work	Humanitarian Pedagogical (50/50)	–
30	242 Tourism	After Diploma Education	–
31	275 Transport Technologies (Motor Transport)	Mechanics - Technology (100/100)	Nizhyn agrotechnical institute (30/-)
32	291 International relations, social communications and regional studios	Humanitarian Pedagogical (25/-)	–

Upon completion training and obtaining bachelor's degree graduates have an opportunity to choose a future master program according to the specialties and Master's degree programs.

Preparation of master's degrees is carried out at the basic institution of the University (Kyiv) and at SS of NULESU «Berezhany agrotechnical institute». Master degree training is provided at the basic institution of the University (Kyiv) in 3 educational and research institutes (ERI) and 13 faculties (Table 1.2).

**Table 1.2. Master's Degree Specialties and Educational Programs**

ERI, faculty 1	Specialty 2	Educational Program 3
ERI of Energetics, Automatics and Energy Saving	Automation and Computer Integrated Technologies	Automation and Computer Integrated Technologies
	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	Woodworking and Furniture Technologies	Woodworking and Furniture Technologies
	Forestry	Forestry
	Park and Gardening Management	Hunting industry
ERI of After Diploma Education	Management	Park and Gardening Management
		Extension service
Agrobiology faculty	Agronomy	Management of innovative activity
		Agronomy
		Agrochemistry and Soil Science
		Selection and genetics of agricultural crops
	Horticulture and Viticulture	Vegetable-growing
		Horticulture
Humanitarian Pedagogical faculty	Management	Management of educational institution
	Sciences About Education	Pedagogy of higher school
	Social Work	Social Work
	Philology (Germanic languages and literature (translation inclusive))	English and second foreign language
		German and second foreign language
Economic faculty	Economy	Economics of enterprise
		Applied Economics
	Accounting and Taxation	Accounting and audit
	Entrepreneurship, Trade and Exchange Activities	Taxation
		Stock exchange activities
Mechanics – Technology faculty	Finance, Banking and Insurance	Finance and credit
	Agricultural Engineering	Agricultural Engineering
	Transport Technologies	Motor Transport
Faculty of Agrarian Management	Management	Administrative management
		Management of foreign economic activity
		Management of organization and administration
		Management of investment activities and international projects
Faculty of Veterinary Medicine	Marketing	Marketing
	Veterinary Hygiene, Sanitation and Examination	Veterinary Hygiene, Sanitation and Examination
	Veterinary Medicine	Veterinary Medicine
Faculty of 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
Faculty of Land Management	Geodesy and Land Management	Quarantine of Plants
		Geodesy and Land Management
Faculty of Information Technology	Economy	Economic cybernetics
	Computer Science and Information Technologies	Information managing systems and technologies
		Computer ecological and economic monitoring
Faculty of Construction and Design	Construction and Civil Engineering	Construction and Civil Engineering
	Industrial Mechanical Engineering	Machinery and equipment of agricultural production
		Equipment of forest complex

Table 1.2 Continuation

1	2	3
Faculty of Livestock Science and Water Bioresources	Water Bioresources and Aquaculture	Water Bioresources and Aquaculture
	Technology of Production and Processing of Livestock Products	Technology of Production and Processing of Livestock Products
Faculty of 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 faculty	Law	Law



### 1.4. Admission rules

Admission to the National University of Life and Environmental Sciences of Ukraine is carried out for the training programs for the “Bachelor” degree (full-time, correspondence course, correspondence course with the elements of distance learning) in accordance with the rules of admission for the current year. The rules are approved by the Academic Council of the University.

Educational activity is carried out according to the license of the Ministry of Education and Science of Ukraine, serial number AE # 636425 from 20.05.2015.

#### Dates for application, competitive assessment of certificates, entrance exams, competitive selection and enrolment

Form of study	Dates of Application		Entrance exams		Rating list	Terms for choosing the place of training by an applicant	Enrolment
	CGSE	JS	CGSE	JS			
Full-time	12.07 - 26.07.2017*	12.07 - 24.07.2017	21.07 - 26.07.2017**	25.07 - 31.07.2017	by 12 <sup>00</sup> pm 01.08.2017	by 12 <sup>00</sup> pm 05.08.2017	financing by state order – by 07.08.2017, financing by individuals and legal entities – by 11.08.2017
Correspondence course	12.07 - 26.07.2017 *	12.07 - 24.07.2017	21.07 - 26.07.2017	25.07 - 31.07.2017	by 12 <sup>00</sup> pm 01.08.2017	by 12 <sup>00</sup> pm 05.08.2017	financing by state order – by 07.08.2017, financing by individuals and legal entities – by 30.08.2017

Note: CGSE – Complete General Secondary Education; JS – Junior specialist

#### Financing of training:

- by state order;
- by individuals and legal entities.

**With the application form, filled in paper format, applicants personally submit the following documents:**

- a copy of personal ID (1st, 2nd pages and place of registration, 3 copies);
- a copy of a state document of previously acquired education (educational qualification) level, on the basis of which the entry is made, and a copy of the attachment;
- a copy of the certificate of the Ukrainian Centre for Educational Quality Assessment with marks in the subjects determined by the admission rules of NULES of Ukraine for selection procedure to enter the chosen specialty;
- 4 colour photos 3x4 cm;
- a copy of the identification number (3 copies).

All copies of the documents are certified at NULES of Ukraine or according to the established regulations. **Copies without submitting the original documents are not considered.**

\* applicants admitted on the base of the interview, entrance examinations at NULES – by 20.07.2017

\*\* applicants who are interviewed – by 21-23.07.2017



Ukrainian passport or other document identifying a person and citizenship (birth certificate for under-age applicants without passports), military ID (certificate of detachment to the recruiting station), a standard document (original) of the previous educational (educational and qualification) level which serves as the basis for enrolment, and appendix; certificate(s) of the Ukrainian Centre for Educational Quality Assessment and documents certifying their right to apply are submitted by an applicant in person.

Copies of the documents which confirm special conditions of entrance to obtain a higher education on the basis of Complete General Secondary Education in accordance with the rules of admission or admission rules by quotas are submitted in paper form by an applicant in person within the dates of application submission. Documents certifying special conditions of the entrance to obtain a higher education on the basis of Complete General Secondary Education, which are not submitted in time, are not entitled to receive such special conditions.

Applicants for the Bachelor's degree on the basis of complete General secondary education applying for full-time and correspondence forms of education except the applicants having the special rights on participation in competitive selection according to the results of entrance examinations, enrolment by interview and enrolment by quota-1 or have distinctions in surname, name, patronymic, date of birth, gender or nationality of the applicant in the identification document, and in the certificate of External Independent Evaluation, **submit an electronic application only**. Applicants may submit up to 9 applications no more than 4 specialties, which provide admission by state order. Submission of applications for participation in the competition for the places at the expense of individuals or legal entities is not limited.

The list of competitive disciplines in the certificates of the Ukrainian Centre for Educational Quality Assessment (entrance examinations) is given in Table.

*While filling applications for participation in competitive selection, applicants specify in each application the priority of this application as to other applications submitted by them, with "1" being the highest priority.*

*For the competitive selection of applicants on the basis of Complete General Secondary Education for the Bachelor's degree, competitive score is calculated by adding the grades of certificate on competitive subjects (entrance examinations), the average score of the document (Annex to the document) of complete secondary education and scores for outstanding achievements in the study of core subjects or successful completion of preparatory courses at NULES of Ukraine taking into account weighting coefficients stipulated by the Rules of admission to NULES of Ukraine.*

The right to participate in the competitive selection only according to the results of entrance examinations in competitive subjects at NULES of Ukraine have persons who have diseases mentioned in the List of diseases that can be a barrier for citizens to pass the External Independent Evaluation, approved by the Ministry of Education and Science of Ukraine and the Ministry of Health of Ukraine of February 25, 2008 № 124/95, registered in the Ministry of Justice of Ukraine on March 07, 2008, No. 189/14880; children-orphans, children deprived of parental care, persons from among them; persons who by law are recognized the combatants who defended the independence, sovereignty and territorial integrity of Ukraine, participated in anti-terrorist operations, ensuring its implementation, including those who undergo military service (except conscripts) in order determined by the relevant provisions on military service for citizens of Ukraine; persons discharged from military service (including discharges), after November 30, 2016.

**List of competitive disciplines in the certificates of the Ukrainian Centre for Educational Quality Assessment (entrance examinations)**

Specialty (Specialization)	The list of competitive disciplines		
	1	2	3 (chosen by applicant)
Economics (Economics of Enterprise); Finance, Banking and Insurance (Finance and Credit); Accounting and taxation (Accounting and Audit); Marketing; Management; Power Engineering, Electrical Engineering (Electrical Engineering and Electrotechnology, Power Engineering and Electrotechnical Systems in AIC); Automation and Computer Integrated Technologies; Geodesy and Land Management	Ukrainian language and literature	Mathematics	Geography / History of Ukraine
Software Engineering; Computer Science; Economics (Economic Cybernetics); Tourism			Foreign Language / History of Ukraine
Agroengineering; Transport Technologies (road transport)			Foreign Language / Biology
Industry Engineering			Physics / Biology
Computer Engineering; Construction and Civil Engineering			Physics / Foreign Language
Food Technologies			Chemistry / Biology
Forestry, Woodworking and Furniture Technology; Gardening			Geography / Biology
Agronomy; Horticulture and Viticulture		Biology	Geography / Mathematics
Biotechnology and Bioengineering; Protection and Quarantine of plants; Ecology			Chemistry / Mathematics
Veterinary Medicine; Veterinary Hygiene, Sanitation and Expertise			Chemistry / History of Ukraine
Water Bioresources and Aquaculture; Technology of Production and Processing of Livestock Products;			History of Ukraine / Mathematics
Law; Social work; International relations, Public Communication and Regional Studies		History of Ukraine	Foreign Language / Mathematics
Philology (Germanic languages and literature (translation inclusive)) (English and Second Foreign Language)		English or German	History of Ukraine / Mathematics
Philology (Germanic languages and literature (translation inclusive)) (German and Second Foreign Language)			

Individuals who enrol for studying according to the Bachelor's educational-professional programs on the basis of educational qualifying level of specialist are accepted to study on the first (reduced curriculum) or senior courses (for the program with a standard period of study) and are taken in by the state order only in case of applying for the same or related specialty within the field of knowledge. Competitive selection of this category of applicants is the sum of the scores obtained at the entrance examination at NULES of Ukraine and the average score of the diploma of Junior specialist with the weighting coefficients. To participate in the competition in all specialties are admitted the applicants who received not less than 124 points in the core subjects examinations.

Persons who applied in paper or electronic form and participate in the competition for place of state and regional order, after making by the Admission Committee decision on recommendation for admission in accordance with the period have to comply the

requirements for enrolment into places of government and regional order: submit personally the original document on education (educational qualification) level and its annex, a military ID or military service registration certificate (for persons liable for military duty), except in cases provided by law, Certificates of External Independent Evaluation and/or other documents stipulated by the Admission Rules, to the Admission office of NULES of Ukraine. The original documents are stored in NULES during the period of study. Persons who have filed the applications in electronic form also must sign the application form printed out by the Admission Commission.

### **Competitive selection and enrolment of students in NULES of Ukraine**

For admission to the first year of Bachelor's programme (Master of Veterinary) on the basis of Complete General Secondary Education competitive score is calculated by the formula

$$\text{Competitive score (KB)} = K1 \cdot P1 + K2 \cdot P2 + K3 \cdot P3 + K4 \cdot A + K5 \cdot OU,$$

where P1, P2, P3 – grades for External Evaluation or entrance examination for the first, second and third subjects; A is the average rating of the document of complete General secondary education transferred into a scale from 100 to 200 points, OU – the score for successful completion of training courses at NULES of Ukraine according to the scale from 100 to 200 points when applying for the following specialties: Ecology, Industry Engineering, Electricity, Electrical Engineering, Automation and Computer Integrated Technologies, Biotechnology and Bioengineering, Food Technology, Construction and Civil Engineering, Surveying and Land Management, Agronomy, Protection and Quarantine of plants, Horticulture and Viticulture, Technology of Production and Processing of Livestock Products, Forestry, Woodworking and Furniture Technology Gardening, Agriculture, Aquatic resources and aquaculture, Agroengineering, Transport Technologies (road transport).

Non-negative weights K1, K2, K3, K4, K5 at NULES are set at the level:

K1 is 0.25; K2 is 0.4; K3 is 0.2; K4 is 0.1; K5 = 0.05 - for specialties mentioned above;

K1 – 0.3; K2 – 0.4; K3 – 0.2; K4 – 0.1; K5 – 0 - for all other specialties.

### ***Enrolment by the results of the interview***

According to the results of the interview are taken in: the persons who by the Law of Ukraine "On status and social protection of citizens who suffered owing to Chernobyl accident" provided such right; persons recognized as disabled veterans under the paragraphs 10-14 of the article 7 of the Law of Ukraine "On status of war veterans, guarantees of their social protection"; individuals with disabilities who are unable to attend educational institution (on the recommendation of the health authorities and social protection of the population).

Persons who according to the results of interview are not recommended to enrol for studying and who have submitted Certificates of External Independent Evaluation in competitive disciplines with the results not less than stipulated by the Admission Rules, are eligible to participate in the competition on a common basis.

### ***Enrolment by competition***

Other individuals admitted by the admission commission for participation in the competition shall be enrolled to NULES of Ukraine according to the competitive grade.

Persons who are members of national teams of Ukraine, who participated in international competitions, the list of which is determined by the Ministry of Education and Science of Ukraine, the champions and winners of Olympic, Paralympic and Deaflympic Games assess 200 points for the each of two entrance exams selected by the applicants.

Winners (persons awarded diplomas of I -III degrees) of the IV stage of Ukrainian student Olympiads in 2017 on basic disciplines, the winners of the III stage of all-Ukrainian contest of scientific research works of pupils-members of Mala Academy of Sciences of

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Ukraine in 2017, the last item is set equal to 10, and if a competitive score is more than 200, then it is set equal to 200.

**Applicants submit the documents to the address:**

03041, Kyiv-41, 19, Generala Rodimtseva st., building № 1.

How to get to the admission commission:

metro station "Lybidska", "Teremky", bus 212.

Documents are accepted daily from 9<sup>00</sup> to 18<sup>00</sup>, on Saturday and Sunday- from 9.00 to 14.00.

lunch break – 13<sup>00</sup>-14<sup>00</sup>

**Phone:** (044) 258-42-63, 527-83-08

(098) 660-08-48; (063) 804-49-93

[http: www.nubip.edu.ua](http://www.nubip.edu.ua)  
[vk.com/vstupnubip](https://vk.com/vstupnubip)

**e-mail:** [vstup@nubip.edu.ua](mailto:vstup@nubip.edu.ua)  
[facebook.com/vstupnubip](https://facebook.com/vstupnubip)

### 1.5. Organization of academic process

There are the following forms of studying at National University of Life and Environmental Sciences of Ukraine:

full time studying;

part-time studying (distance);

Forms of studying can combine.

**Full time studying** is the basic form of obtaining a certain level of education. It is carried out in accordance with the Regulation on organization of educational process in NULES of Ukraine introduced by Rector's order № 379 from 30.03.2015.

**Part-time studying (distance)** is obtaining a certain level of higher in-service education and qualification.

The educational process in part-time studying (distance) form of studying is organized during a calendar year - during examination sessions and inter-session period, taking into account the benefits required by law for persons who combine work with study.

**An academic process** is a structuralized system of organizational and didactic measures aiming to realize the education content of a certain education and qualification level according to the requirements of the standards for higher education.

Scientific, humanistic, democratic principles as well as the principle of continuity and degree system in education are **the fundamentals of the academic process**. The main objective is to educate and train intelligent and harmoniously developed personalities who are able to extend their knowledge, develop professional mobility and flexibility in the transitional period of reforming the economy of agriculture and forestry.

According to the Law of Ukraine "On Higher Education", NULES of Ukraine implements **a degree system** of higher education "**junior specialist-bachelor-specialist-master**" ("**bachelor-master**" – at the University's basic institution). This system gives a wide range of possibilities to satisfy educational needs and to solve educational problems for a person, increasing universal educational flexibility for professional training and the level of social protection regarding the changes of the needs of the economy and the labor market. It ensures obtaining a desired qualification or extended professional training in specialties and offers correspondent educational and qualification programs.

The regulatory and legislative framework for organization of the academic process at the University is **the Laws of Ukraine "On Education", "On Higher Education"**, the national standards for higher education and standards for educational activity, "The Regulation on the educational Process at NULES of Ukraine", professional educational programs for training qualified specialists of correspondent directions and qualification levels (EQL).

**The content of education** is a scientifically grounded system of the didactically and methodologically framed teaching material for different educational and qualification levels. The content of education is determined by professional and training programs, structural and logical training schemes, curricula for disciplines, as well as other regulative acts of the state administrative and executive bodies for education and by higher educational institutions. The content is reflected in course books, textbooks, methodological materials, references and didactic means. It is also implemented during academic classes and other forms of educational activity.

**An educational and professional training program** is a list of standard and elective disciplines with the defined number of hours for their studying and forms of control.

**Structural and logical scheme of training** is scientific and methodological substantiation for implementation of an educational and professional training program.

**The main normative document** determining the academic process organization in a specific field of study **is a curriculum** that is implemented by the dean's offices (director's offices of ERI) on the grounds of educational and professional training programs and structural and logical scheme of training and defines the list and the volume of standard and elective disciplines, sequences of studying the disciplines, corresponding forms of classes and their quantity, schedules of the academic process, forms and means of control. The curricula are approved by the Rector of the University and compiled every academic year.

The curriculum distributes the number of hours for disciplines as follows:

- Standard - 60% of the total academic workload of a student (the list of these disciplines, the number of hours and credits are determined by the standards of higher education, requirements of MES of Ukraine within the relevant fields of training (specialties) and are included in the curriculum of training in full);

- Elective:

- offered by the University - 15% of the total academic workload of a student (the list of these disciplines, forms of study (in class or independently) and credits are defined by the academic board of the University).

- chosen by students - 25% of the total academic workload of a student (the list of these disciplines, forms of study (in class or independently) and credits are defined by the working groups formed by the order of Rector of the University, recommended by academic boards of faculties (ERI), approved by the teaching and methodological board of the University as well as by the academic board. They are included in the curricula, depending on the student's choice).

The place of a discipline and its importance, its content and the requirements to the level of knowledge and skills obtained are determined by the course program. The training program of the discipline which specifies the outlines, the sequence, organizational forms and hours, means and forms of current and final control is compiled on the basis of the curriculum and the syllabus of the discipline by correspondent departments.

**The academic process at the University has the following forms:** classes, individual tasks, student independent learning, practical training, and examinations.

Lectures, laboratory research, practical classes, seminars, individual classes, consultations are the main forms of studying.

The classes are organized into semesters (trimesters) according to the annual schedule of the academic process.

Student independent learning is the main form to obtain knowledge and skills in out-of-class time. The hours for student independent learning are regulated by the curricula and should take no less than half the total hours of studying a specific discipline by a student.



**Student practical training** is a compulsory component of the training program for qualification level that aims to help students acquire professional skills. It is held at the independent subdivisions of NULESU educational and research farms and research stations, at advanced modern agricultural and forestry enterprises under scientific supervision of scientific and training staff of the University and experts of the enterprises.

Control includes current control and final control. The current control aims to assess students' readiness to carry out specific tasks during practical classes, laboratory research and seminars. Forms of the current control are determined by the correspondent departments. Moreover, in accordance with the requirements of a module-rating system of training implemented at the University, at the end of each content module there is an obligatory assessment of the level of students' mastering the material.

The final control aims to assess the results of training at a certain education level or at certain completed stages. According to "The Regulations on Examinations and Credits at NULESU", the final control takes two forms: an examination or a credit in a specific academic discipline.

**A credit** is a form of assessing students' laboratory and practical tasks, student knowledge of certain parts of academic disciplines, course projects (papers), educational and practical training activities. Credits in laboratory research tasks and practical activities are to be over before examination sessions start.

**Examinations (course examinations)** aim to assess students' knowledge of the academic disciplines, their abilities to apply knowledge and skills obtained in order to solve practical problems in their professional activities.

**Examinations** are to be taken during the period of examination sessions according to the academic calendar of the University and the schedules of the academic process.

Examination results are scored according to the national four-grade scale – "excellent", "good", "satisfactory", "unsatisfactory" and to European Credit Transfer and Accumulation System (ECTS) – A, B, C, D, E, FX, F. *For conversion from the Ukrainian national grades into ECTS grades, see Table 1.5.* Credit results are scored by the national marks "passed" and "failed" and by the correspondent ECTS grades.

**Student academic workload** is determined by the number of time measure units for training programs. An academic hour, an academic day, a week, a semester, a course and a year are student academic workload time measure units.

**An academic hour** is a minimum academic student workload unit which takes 45 minutes.

An academic student day lasts no longer than 9 academic hours, an academic week for full time form of studying for ED Bachelor – 30 academic hours (1<sup>st</sup> year); 28 hours (2<sup>nd</sup> year); 26 hours (3<sup>rd</sup> year); 24 hours (4<sup>th</sup> year); for EQL "Specialist" – 24 hours, for ED "Master" – 18 hours.

One of the peculiarities of the academic process organization at NULESU is a **credit-module system of training** for all training courses and programs of professional training of ED "Bachelor", EQL "Specialist" and ED "Master" witch is regulated by "The Regulations on the Credit-Module System of Education at NULES of Ukraine".

**The principle of module training** consists in dividing the content of each academic discipline in terms of its volume and structure into several content modules. **A content module** is a logically complete part of theoretical and practical material of the academic

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disciplines containing, as a rule, several lecture themes, practical classes (seminars), laboratory research, calculation problems etc. The number of content modules for one discipline is determined by the lecturer who is responsible for the discipline, and approved at the chair meeting. Content modules are included into the curriculum for the discipline.

It is recommended that there be from 2 to 4 content modules for one discipline within the period of one semester with an obligatory control of the competences gained. The content of each module is learned by students in-class or independently.

Total academic workload (in-class and out-of-class activities, individual tasks, etc.) is measured in hours and ECTS-credits (one ECTS-credit corresponds to 30 hrs.)

**Table 1.5. Ratio between the Ukrainian National and ECTS grades and student's rating**

The Ukrainian National Grade	ECTS Grade	Percentage of students who get corresponding grade at European Universities	Definition of the ECTS grading	Student's rating, points
1	2	3	4	5
<b>Excellent</b>	<b>A</b>	10	<b>EXCELLENT</b> – outstanding performance with only minor errors	<b>90 – 100</b>
<b>Good</b>	<b>B</b>	25	<b>VERY GOOD</b> – above the average standard but with some errors	<b>82 – 89</b>
	<b>C</b>	30	<b>GOOD</b> – generally sound work with a number of notable errors	<b>74 – 81</b>
<b>Satisfactory</b>	<b>D</b>	25	<b>SATISFACTORY</b> – fair but with significant shortcomings	<b>64 – 73</b>
	<b>E</b>	10	<b>SUFFICIENT</b> – performance meets the minimum criteria	<b>60 – 63</b>
<b>Unsatisfactory</b>	<b>FX</b>	-	<b>FAIL</b> – some more work required before the credit can be awarded	<b>35 – 59</b>
	<b>F</b>	-	<b>FAIL</b> – considerable further work is required	<b>00 - 34</b>

An overall student academic workload should be no less than 60 ECTS-credits per academic year, 30 ECTS-credits per semester, and 20 ECTS-credits per trimester.

**Student rating is assessed** after a logically completed part of lectures and practical classes (a content module) for disciplines and during the final control of knowledge and skills. The student assessment rating does not eliminate a traditional grading system. Both assessment systems, being used together, make the assessment system more flexible, objective and promote systematic and active individual student performance during the whole period of studying, ensuring a sound competition among the students in their learning, facilitating students' development and creativity.



The student assessment rating in academic disciplines, course papers (projects), reports on all training practices (training and production), state examinations, graduation projects (graduation bachelor's papers, graduation papers (projects) and graduation master's papers) is scored according to **the 100-point scale**.

The student rating for the academic discipline includes the training rating – 70 points the highest, and the attestation rating – 30 points the highest. Consequently, a content module as part of an academic discipline is scored in 70 points the highest. Rating grades in content modules, as well as attestation rating, are scored according to the 100-point scale.

The student's rating in different types of academic performance in points is transformed into national grades and ECTS-grades and is recorded into an examination record, a student grade record and a student assessment register (see *Table 1.5*).

The students having 60 points and more for their academic performance have the right not to take an examination (credit) and to get an examination grade (a credit) "Automatically" according to the number of the points they gained. Points are transformed into national grades and ECTS-grades (see *Table 1.5*).

If students want to get a higher rating to get a better grade in an academic discipline, they are to go through a semester attestation. The latter is obligatory to be taken by the students gaining less than 60 points. To be allowed to take an attestation, a student is required to have no less than 60 points for each content module, on the whole, no less than 42 points for academic performance.

The students with a higher academic rating have the following benefits:

- guaranteed workplace after graduating from NULES of Ukraine;
- accommodation and scholarships;
- a choice of the place to have production and training practices;
- training according to individual academic plans and schedules;
- transfer to a new specialty;
- selection for internship abroad;
- advantages in competitive contests for master's degree program.

In order to promote mobility of students and faculty, academic disciplines are taught in the English language at NULES of Ukraine. The majority of disciplines are taught in English for special groups of students in nineteen bachelor programs and the corresponding specialties of master's degree training programs:

- Automation and Computer Integrated Technologies;
- Agronomy;
- Biotechnology and Bioengineering;
- Veterinary Medicine;
- Industrial Mechanical Engineering;
- Geodesy and Land Management;
- Ecology;
- Economy;
- Plant Protection and Plant Quarantine;
- Management;
- Management of foreign economic activity;
- Administrative management;
- Accounting and Taxation;

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Law;  
Public Management and Administration;  
Social Work;  
Transport Technologies (Motor Transport);  
Philology;  
Finance, Banking and Insurance.

These programs allow the graduates with proficiency in the English language to adapt quickly to the contemporary requirements of the national and international labor markets, or to continue their education at the leading universities of the world and occupy top positions in different international companies.

Another peculiar feature of the academic process at the University is **a possibility for students with a Junior specialist degree to continue their education on a shortened (up to two years) bachelor's degree training program**, if their specialty is included into the field of study they apply for. There are 23 specialties:

Automation and Computer Integrated Technologies;  
Agricultural Engineering;  
Agronomy;  
Veterinary Medicine;  
Water Bioresources and Aquaculture;  
Industrial Mechanical Engineering;  
Geodesy and Land Management;  
Ecology;  
Economy;  
Power Engineering, Electrical Engineering and Electrical Mechanics;  
Plant Protection and Plant Quarantine;  
Software Engineering;  
Computer Engineering;  
Computer Science and Information Technologies;  
Forestry Management;  
Management;  
Accounting and Taxation;  
Law;  
Park and Gardening Management;  
Technology of Production and Processing of Livestock Products;  
Transport Technologies (Motor Transport);  
Finance, Banking and Insurance;  
Food Technologies.

According to the results of entrance examinations, junior specialists are enrolled in the first year of studying in a separate batch with the shortened two-year period or the vacant places of the second or third year of studying, the choice of which depends on their academic gap in the curricula (in this case, they study according to their individual plans).

The University organized **a leveling-off summer semester** for the junior specialists who were enrolled on the bachelor's degree training programs 2-3 years of studying corresponding to their specialties. The aim of the semester is to reduce the academic gap in the curricula for Junior specialist's and Bachelor's degree, thus, facilitating their training at the University.

The 2015 leveling-off summer semester was organized for bachelor students of almost all fields of study. The University charges tuition fee for summer semester training.

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The payments for additional educational services provided during a summer semester transfer to a special fund of the University.

### 1.6. Practical training of Students

Student practical training is a constituent part of the academic process at National University of Life and Environmental Sciences of Ukraine. It is regulated by “The Regulations on Student Practical Training at NULES of Ukraine”, approved by Rector’s Order on 19.10.2015.

**Student practical training aims to** generalize theoretical and practical knowledge, obtain professional knowledge and skills to train qualified professionals with higher education according to the requirements of education and qualification level and ensure high professional training quality.

**The objectives of practical training are:**

to train professionals able to solve production problems in current market conditions, to apply methods and techniques of innovative technology;

to obtain skills in:

making decisions in specific work situations;

implementing advanced technology and scientific findings into production;

team working and cooperation;

a corresponding profession.

Student practical training is a continuous and coherent process going on during the whole period of studying in order to facilitate acquiring certain competences of future bachelors, specialists and masters.

Practical training includes laboratory and practical classes, training and production practices of students.

**Laboratory classes** take place at university laboratories specially equipped with facilities for the academic process (training hardware, machinery, etc.). Laboratories for the students of Technology of Production and Processing of Livestock Products, Veterinary Medicine, Agrobiology, Plant Protection, Engineering for Agrobiosystems, Design Engineering for Machinery and System of Nature, Forestry, Economics, Agricultural Management, Food Technology and Quality and Safety of Livestock Products take place in real professional environment – at educational, research and production laboratories of the educational and research farms of NULESU.

**Practical classes** take place in computerized classrooms or in the University laboratories equipped with necessary technical teaching facilities. Practical training includes teaching materials – tests - to assess the level of students’ knowledge of crucial theoretical principles, a set of tasks of different level of complexity.

**Training practices** are held during the first and second years of bachelor’s degree programs at educational, scientific, production laboratories, clinics, workshops, on the fields of the educational and research farms (ERF) of NULESU, as well as at the leading companies, enterprises, organizations and institutions of Ukraine and other countries that meet the requirements of the educational and professional programs for bachelor’s degree. The practices aim to introduce specific features of the field of study and specialties for the students to be competent in accordance with educational and qualification characteristics, and, in some cases, to get a working profession from a wide range of professions of a corresponding field. Training is supervised by the scientific and teaching

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stuff of the University and the leading specialists of ERF of NULESU. According to the Rector's order, they are responsible for training practice programs. The practices are also supervised by the staff of the student practical training educational and scientific center (SPTESC) assisting to carry out the training programs' tasks.

**Production training** (technological, operational, engineering, teaching, economic etc.) is taken by undergraduates in bachelor's and master's training programs. The training aims to extend and deepen the skills obtained by the students while studying cycles of special disciplines, which helps the students get new skills required to be able to use their knowledge and skills in production. It also aims at improving professional skills and gathering actual material and data for graduation course papers (EQL "Bachelor" and EQL "Master"). Production training takes place at educational and educational- scientific-production laboratories, ERF of NULESU, as well as at the leading companies and enterprises of Ukraine and other countries according to the contracts signed. Training is supervised by the scientific and teaching stuff of the department chairs and top managers of farms, enterprises, organizations and institutions. Moreover, the staff of SPTESC assists in production training at ERF of NULESU.

Scientific and research graduation practice is a final stage of practical training and a preparatory period for writing graduation papers (EQL "Bachelor" and EQL "Master"). Students take it during their last year of studying to generalize and improve their skills, to get professional experience and readiness for further independent work, as well as collect data for graduation papers.

### **Places for student practical training**

Educational, educational-scientific, educational-scientific-production laboratories of the basic institution of NULESU and its separate subdivisions (SS), mainly ERF of the University for labs and classes, as well as training, technological, scientific and research, graduation and other training in Plant Growing, Animal Husbandry, Processing and Storing of Crop Production, Technology for Biodiesel Production, Livestock and Fish Breeding, Methods for Diagnosing and Preventing Animal Diseases, Maintenance Technology, Agricultural Machinery Maintenance and Testing, Forestry, Wood processing, Hunting Industry and its Legal Support, Economics, Accounting, Marketing and Management in agricultural production, etc.

NULESU has its own places for practical training:

2 research stations - SS of NULES of Ukraine "Agronomy Research Station", SS of NULES of Ukraine "Boyarka Forest Research Station" (Kyiv region),

5 educational and research farms - SS of NULES of Ukraine "Velyka Snitynka Training and Research Farmstead named after O.V. Muzichenko", SS of NULES of Ukraine "Training and Research farmstead "Vorzel" and ERF SS of NULES of Ukraine "Nemishayevo Agrotechnical College" (Kyiv region), ERF SS of NULES of Ukraine "Zalishchyky College of Agriculture named after E.Khraplyvyi" and ERF SS of NULES of Ukraine "Nizhyn Agrotechnical Institute" (Chernihiv region);

special places for practical training at regional higher education institution of NULESU of I-II accreditation levels;

Botanic Garden of NULESU.

The total area of agricultural lands under the structures mentioned above is more than 35 000 ha, including approximately 18 000 ha of woods, fields under research, green

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houses, livestock complexes, automobile and tractor garages, workshops, polygons, manufactories etc.

The farms of the University are located in different soil and climatic zones of Ukraine – Woodlands, Steppe. The specific features of the practical training places of the University are organization of corresponding departments and their branches, as well as over 80 training-production and training-scientific-production laboratories where the students have laboratory and practical classes, training and production practice, etc.

Bases practical training of students (trainees) of Nulesu is educational, educational-scientific, educational-scientific-production laboratories of basic institution of the University (Kyiv), its subdivisions (OP), and in the first place – NDG University, where he conducted laboratory and practical classes, training, technology, research, undergraduate and other practices in the areas of: crops, livestock, processing and storage of crop production technology of biodiesel production, breeding animals and fish, development of methods of diagnostics and prevention of animal diseases, technology repair, maintenance and testing of agricultural machinery, forestry, wood industry, hunting case and its legal support, Economics, accounting, marketing and management in the sphere of agricultural production.

At **SS of NULES of Ukraine “Agronomy Research Station”**, students study modern technologies for crop production, and take part in raising elite seeds of winter and spring crops, vegetable and fruit elite seedlings. There is a bank of agricultural crop varieties with approximately 300 kinds of wheat, barley, peas, oats, maize, sugar beet, rapeseed, soybeans, potatoes, vegetables, etc. There are also training and production subdivisions of raw processing of crop and livestock products.

There are 5 forestry parks and 2 wood processing manufactures, a botanic garden of the University which has more than 700 kinds of trees and bushes in the structure of **SS of NULES of Ukraine “Boyarka Forestry Research Station”**. These subdivisions of NULESU are perfect training places for the students of the faculties of Forestry and Park, Gardening and Landscape. These students study advanced technologies of forest plantations, forest pests control, forest care, logging and wood processing.

**SS of NULES of Ukraine “Velyka Snitynka Training and Research Farm named after O.V. Muzychenko”** has educational, scientific and production laboratories in crop production and livestock breeding. Wheat, peas, oats, triticale, buckwheat, vetch, sugar beet, rape, maize, potato, vegetables, root crop, annual and perennial grasses are grown there. There is a department of Machinery Testing and Practical Training that provides the agricultural machinery and electrical facilities of the farm with maintenance provided by the students. There are also processing enterprises manufacturing cheese, sausages, pasta and bakery products, and equipped educational laboratories.

The specialization of **SS of NULES of Ukraine “Training and Research farm “Vorzel”** is dairy and meat products. During their training practice, the students study the cycle of breeding aberdeen-angus and Ukrainian black speckled breed of cattle, growing vegetables in greenhouses. Oats, potatoes, vegetables, corn, annual and perennial grasses are grown there.

Training and production practice of the students of **SS of NULES of Ukraine “Berezhany Agrotechnical Institute”** takes place at arboretums “Berezhansky”, “Raivskyi

Park”, educational and production station “Garden”, nursery ornamental crops, educational and research laboratories of biogas and biofuel, production workshops.

At **SS of NULES of Ukraine “Nizhyn Agrotechnical Institute”**, professional practical training is provided by ESF with a laboratory of crop production, a farm with loose boxed cattle keeping and De Laval milking equipment. Barley, pea, oats, maize, rape, annual grasses are grown there.

Agricultural lands, collection and research fields, educational-scientific-production laboratories of mycology, fisheries, livestock, poultry, farm pond (19.6 ha), machine and tractor garage with workshops, operated granaries are the places of the student practical training.

Wheat, oats, potato, vegetables, maize, annual and perennial grasses are grown at **ERF SS of NULES of Ukraine “Nemishayevo Agrotechnical College”**. It also has fish-breeding and fruit processing production units.

ERF of **SS of NULES of Ukraine “Zalishchyky College of Agriculture named after Ye. Khraplivyi”** has a laboratory of ecological expertise, collection and research field, an arch greenhouse for training and production practice of students. Wheat, oats, peas, buckwheat, maize, potato, vegetables are grown there.

**Ukrainian laboratory of quality and safety of agricultural products.** Practical training is carried out for students of (ERI): agrobiological; plant protection, biotechnology and ecology; livestock and aquatic bioresources; veterinary medicine.

The mentioned above ERF are the places where NULESU implements advanced agrotechnologies at the expense of the cooperation with well-known foreign companies: John Deere (the USA), Valtra Valmet (Finland), M&P Farma (Switzerland), ACCO (Denmark), Alfa Laval Agri in Ukraine (Sweden), VUZT (Czech), FML (Germany) that provide the University with advanced technology, equipment, agricultural machinery etc.

The places for student practical training include leading institutions, enterprises, organizations of different ownership in Ukraine and abroad that meet the requirements of the education programs for professional training. The University and ERFs make agreements and draw up passports which are kept in the Academic department and deans' offices. The period of the agreements corresponds the period of a definite practical training or a five-year term.

### 1.7. Teaching and research staff

More than 3 000 of the academic staff ensure the academic process and scientific research at University of Life and Environmental Sciences of Ukraine.

For today in the basic institution of the University (Kyiv) 1403 working scientist, 80% of them have scientific degrees and academic titles. The average age of the academic staff is 47.

Among the academic staff of the basic institution of NULESU, there are:

doctors of sciences and professors – 234;

candidates of sciences and associate professors – 895;

Heroes of Ukraine – 1;

Academicians of the NAAS of Ukraine – 11;

Correspondent Members of the NAS of Ukraine – 3;

Correspondent Members of the NAAS of Ukraine – 17;

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Honored Workers of Science and Technology of Ukraine – 19;  
Honored Workers of Education of Ukraine – 19;  
Honored Workers of Higher School of Ukraine – 1;  
Honored Inventors of Ukraine – 4;  
Honored Doctors of Ukraine – 1;  
Honored Workers of Veterinary Medicine of Ukraine – 1;  
Honored Workers of Agriculture – 11;  
Honored Workers of Transport of Ukraine – 1;  
Honored Electrical Engineers – 1;  
Honored Constructors of Ukraine – 1;  
Honored Economists of Ukraine – 4;  
Honored Foresters of Ukraine – 1;  
Honored Lawyers of Ukraine – 2;  
Honored Workers of Culture and Sports of Ukraine – 2;  
Honored Masters of Folk Art – 1;  
Honored Artists of Ukraine – 2;  
People's Artist of Ukraine – 1.

There are 274 doctors of sciences and professors and 1109 candidates of sciences and associate professors at all structural divisions of NULESU.

The scientific and academic staff of a higher qualification take post-graduate and doctoral courses. Currently, 444 postgraduate students (including 176 part-time) and 96 seekers are taking postgraduate programs, 26 candidates are doing doctoral programs.

The work of 20 specialized scientific boards on dissertation defense in 4 specialties (for a degree of Candidate of Sciences) and 16 specialties (for a degree of Doctor of Sciences) is organized and coordinated by the educational and scientific center of training and attestation of the academic staff of a higher category. The faculty members and postgraduate students submitted and defended 10 dissertations to get a degree of Doctor of Sciences and 76 dissertations to get a degree of Candidate of Sciences in 2016.

In 2016, 20 doctors of sciences joined the academic staff of the University.

### **1.8. Material and Technical Infrastructure**

The basic institution of National University of Life and Environmental Sciences of Ukraine is located in Golosievo, one of the picturesque places of the City of Kyiv.

The university has 17 educational buildings of the basic institution as well as educational, educational-scientific and educational-scientific-production laboratories in separate subdivisions – educational and research farms and research stations – in Kyiv, Chernihiv, Ternopil regions. They have all necessary facilities to provide high quality academic process

There is a modern scientific library with the fund of 1 000 000 books, 400 000 of which are course books, textbooks and reference-books 610 000 – scientific literature; there are 14 residence buildings providing accommodation for approximately 80% of full time students, a canteen, snack bars, etc. Moreover, the educational and research farms

(ERF) and research stations of the University have their own student residence buildings to provide the students doing practical training with accommodation:

Agronomy Research Station –100 people,

Velyka Snitynka Training and Research Farm named after O.V. Muzychenko –110 people,

Boyarka Forestry Research Station – 120 people,

Educational and Research Farm "Vorzel" – 75 people.

The sports complex of the basic institution of the University includes a modern open stadium and a building for physical education and sports.

The Ukrainian Laboratory of Quality and Safety of Agricultural Products, the Ukrainian SRI of Agricultural Radiology, the State Research and Project Institute "Conservpromcomplex" (Odessa) and other facilities form the structure of the University.

There are separated subdivisions at NULESU – 11 regional higher educational institutions of I-III accreditation levels in different regions of Ukraine: Berezhan Agrotechnical Institute and Berezhan Agrotechnical College (Ternopil region), Nizhyn Agrotechnical Institute and Nizhyn Agrotechnical College (Chernihiv region), Irpin' College of Economics, Nemishayevo Agrotechnical College, Boyarka College of Ecology and Natural Resources (three institutions are located in Kyiv region), Zalishchyky College of Agriculture named after E.Khraplivyi (Ternopil region), Bobrovytsia College of Economics and Management named after O. Mainova (Chernihiv region), Mukacheve College of Agriculture (Zakarpattia region), Rivne College (Rivne region).

Each institution has its own educational buildings and student residence buildings, some of them having training and research farms, research fields etc.

### **1.9. Information and telecommunication support of the academic process**

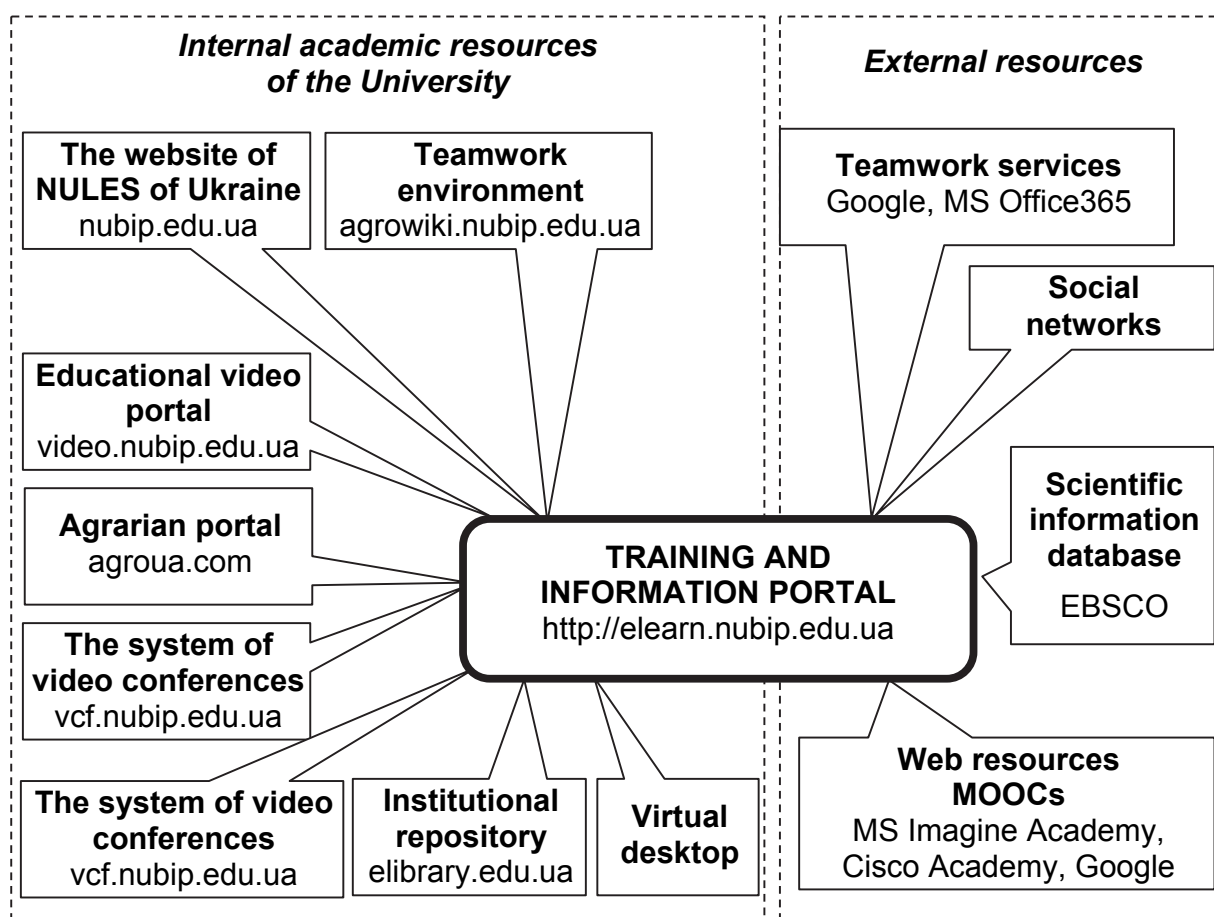
The main objective of the university – to train highly qualified specialists for the agricultural sector with up-to-date computer knowledge and skills. In order to make efficient use of ICT in the educational process, a corporate information-educational environment (IEE) has been organized at NULES of Ukraine. 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 1).

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 3000 computers. They are supported by servers with the licensed software, including licensed Microsoft 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. 1. 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](http://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](http://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, description of open e-learning courses, patents;

Wikiportal ([agrowiki.nubip.edu.ua](http://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](http://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](http://econference.nubip.edu.ua);

On-line system UNPLAG to check diploma and course works of students, scientific and educational-methodical literature of NPP to identify plagiarism in the 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 ", "Irpine Economic College ", "Nizhyn Agrotechnical Institute". In 2015, during the international conferences held at NULESU, the university provided video support of foreign participants from Poland, Great Britain, the Netherlands etc.

### **1.10. 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 300 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 1000 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.

There is an electronic library containing the full text of educational and scientific publications of university scientists, with access from the local university network, namely, more than 800 textbooks and teaching AIDS, about 400 monographs, more than 2400 publications of educational materials (methodical recommendations to performance of laboratory, practical and seminar works, abstracts of lectures of subjects) and more than 220 abstracts of theses. Electronic library of Nulesu available from the local network University.

The square of the library is 2844 m<sup>2</sup>. 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 the library can not provide the readers with the literature they need, it is possible to order it on interlibrary subscription (ILS) and by email ([library@nubip.edu.ua](mailto: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 University staff.

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 compiles the 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);

E-library containing 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:***

- Website of scientific library support (<http://library.nubip.edu.ua>);
- uploading the library 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:

400,000 copies of scientific literature

58,000 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 3,500 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 library 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 library 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 library 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 library 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

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Surgery, ophthalmology and orthopedics of animals  
Veterinary obstetrics and gynecology  
Feeding, animal breeding  
Veterinary-sanitary examination  
Foodstuff safety  
Standardization, certification, metrology.

#### **1.11. Educational, sports and social activities, military-patriotic education**

Together with the departments of cultural studies, physical education, Humanities, student government educational work of the University organizes and coordinates TRC educational and social development.

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 has been organized.

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.

Teams of the University and individual athletes participate in competitions at various levels: district, city, national, international and repeatedly won prize-winning places.

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 fitness and health of young people, the University built an outdoor playground for mini-football with artificial turf. In 2015-2016, the educational building № 9 which houses the Department of physical education, outdoor volleyball court, stadium were renovated up to modern standards.

No less important influence on the education of students, establishing the basis for the formation of personality of a future qualified specialist, and master of the land, fully developed and harmonious personality has a dormitory. 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 improved the quality of living conditions in hostels Nulesu. Living rooms are equipped with hard and soft items, created conditions for self-study: the work of reading rooms in which there is access to free Internet, conducted educational and cultural work. All hostels run laundromats. For sports in the hostels there are sports room, and in adjacent territories of hostels № 1, 2, 6, 8, 10, 11 renovated playgrounds, in front of the hostel № 12 to the Playground. Student organizations faculties, ERI, and boards of student dorms have meetings rooms.

### **1.12. Reserve Officers Training**

Reserve officers training is provided by the department of military training of National University of Life and Environmental Sciences of Ukraine.

The department of military training of NULES of Ukraine was created in 1926, when the position of a military leader appeared in the Kiev State Veterinary and Zootechnical Institute by the order № 33111 of the Military educational institutions from 11.05.1926.

Since 1999, the head of the department of military training is colonel A.A. Yesaulov.

Currently, the Department of Military Training trains students in six military specialties:

- Military use of mechanized formations and units;
- Military use of armoured units, military units;
- Use of vehicle formations and units;
- Maintenance and repair of machines of armoured vehicles;
- Maintenance and repair of electrical and special equipment and automation of armoured vehicles;
- Radiology and veterinary toxicology.

Today, 810 citizens of Ukraine do the training course of reserve officers at the department of military training.

Besides, the department provides training of regular officers for Armed Forces of Ukraine and other military formations in speciality "Veterinary medicine", specialization "Veterinary medicine".

The main tasks of the department of military training of NULES of Ukraine are:

training and advanced training of specialists of different educational and qualification levels for military service under the contract in Armed Forces of Ukraine and other military formations;

military training of students of higher educational institutions according to the reserve officers program;

military patriotic education;

improvement of teaching and material resources.

The Department of Military Training has highly qualified specialists, among them there are veterans.

To achieve its objectives the department conducts training and methodological work, as well as research and scientific-technological activities. The training process consists of lectures, laboratory, tactical, practical classes and seminars, group exercises, tactical training, etc.

Teaching and methodological meetings, scientific conferences and seminars, demonstrations and open classes, pedagogical experiments are regularly held.

Military training department has various educational facilities, including shooting range; computer lab equipped with modern teaching aids (interactive whiteboards, multimedia systems); rooms for tactical, fire and technical training; maintenance station, field veterinary laboratory; library; marching parade, tactical town.

Weapons and military equipment are widely used for training of students and cadets. These are armored vehicles (tanks T-64B, BMP-1, BMP-2, BTR-80), automotive vehicles (UAZ-3151-01, ZIL-130 GAZ- 66, ZIL-131), engineering equipment (mine detectors, training mines), communication means (radios 105m P-and R-123M, tank intercom R-124), battle and training hand firearms. (AK-74M, Machine Guns RPK-74M, PKM and PKT grenade launchers AGS-17 and RPG-7V, pistols PM, SVD sniper rifles, small-caliber rifles and pistols).

Students are trained for 2 years and complete the course with military training session. During the training session students are engaged in physical training, get practical skills in driving tanks and infantry fighting vehicles, repair and maintenance of armored vehicles and do the course of firing with hand firearms.

The department of military training of NULES of Ukraine has all necessary conditions to achieve its objectives.

In 2016, the university graduated 404 reserve officers.

Now the department trains:

First year of study – 432 students;

Second year of study - 388 students.

### 1.13. International mobility

**International mobility** is a process of integration in the field of education that provides an opportunity for students, postgraduates, teaching staff to participate in diverse academic or research programs. The main objectives of these programs are to improve the quality of education, to develop cross-cultural exchange, train future qualified specialists. Participation in mobility programs gives a student the opportunity to receive a quality European education in their chosen specialty, to broaden their knowledge in all fields at of European culture, to feel like a citizen of Europe.

International mobility in NULES of Ukraine is one of the main 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** train and do internship at overseas universities;
- **about 1000 students** have practical training at the leading agricultural enterprises in different countries;
- **more 200 lecturers** do internship in foreign institutions train, establish cooperation and represent the university in international events.

Over the last 5 years (from 2011 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 joint research projects and programs HORIZON-2020, ERASMUS+, GESAPU, MIMIPPA, QANTUS, ALRAKIS II, FP-7, etc.;**
- participation in the international 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;
  - the 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.

The University offers the following international programs **to obtain a double diploma**:

- "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).

#### **1.14. Student self-governing**

There is a Student Organization at National University of Life and Environmental Sciences of Ukraine which is actively developing. 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;
- Club "City Of Mafia";
- Science club;
- Media-centre;
- Center of social work;
- Sports Center;
- 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. Collaboration with the student councils of other universities makes it possible to find new perspectives, to carry out joint activities and to implement projects.

### 1.15. Areas of graduates' employment

According to state regulatory documents of Ukraine graduates of higher educational institutions of environmental, biological, technical, agricultural areas, who have received a degree of **bachelor**, are provided with areas of employment, depending on the field of study (specialty) for positions of technicians, engineers, foresters, forestry engineers, economists, accountants, agronomists, doctors of veterinary medicine, specialists, etc. in industries of agriculture, forestry and fisheries, veterinary services, processing industry, energy, technical services, engineering; public administration, commerce.

Employment of graduates of the National University of life and environmental Sciences of Ukraine is carried out in the agricultural enterprises of different forms of ownership, fisheries, meat and fish processing enterprises, state agricultural and land inspection agencies, environmental companies, the central executive authorities in the sectors of agriculture and land resources and their territorial subdivisions, the state quarantine service, state reserves, nature reserves, regional and district agricultural agencies, state veterinary medicine institution, private clinics of veterinary medicine, state forestry, forest hunting and hunting enterprises, zoological parks, institutions of natural reserve fund, public and commercial woodworking and furniture enterprises, public housing companies, trusts engaged in landscaping of green spaces, private firms on gardening and landscape design, landscape design offices, joint ventures and subsidiaries of international firms etc.

Graduates of NULES of Ukraine can also continue their education in the basic institution of the University (Kyiv) and SS of NULES of Ukraine "Berezhany agrotechnical institute" in the specialties and specializations of master's programs given in table 1.2 in the part "Specialties for Bachelor's degree" of this Catalog.

## **2. Bachelor's Degree Programs**

### **2.1. General Regulations**

### **2.2. Agrobiology Faculty**

201 Agronomy

203 Horticulture and Viticulture

### **2.3. Faculty of Plant Protection, Biotechnology and Ecology**

202 Plant Protection and Plant Quarantine

162 Biotechnology and Bioengineering

101 Ecology

### **2.4. Faculty Livestock Science and Water Bioresources**

207 Water Bioresources and Aquaculture

204 Technology of production and processing of livestock products

### **2.5. Education and Research Institute of Forestry and Garden-Park Management**

205 Forestry Management

206 Park and Gardening Management

### **2.6. Faculty of Veterinary Medicine**

211 Veterinary Medicine

### **2.7. Faculty of Alimentary Technologies and Managing of Quality of Productes of Agricultural Sector of Economy**

181 Food Technologies

### **2.8. Faculty of Mekhaniks-Technology**

208 Agricultural Engineering

211 Transport Technologies (Motor Transport)

### **2.9. Faculty of Construction and Design**

133 Industrial Mechanical Engineering

192 Construction and Civil Engineering

### **2.10. Education and Research Institute of Energetics, Automatics and Energy Saving**

141 Power Engineering, Electrical Engineering and Electrical Mechanics

151 Automation and Computer Integrated Technologies

### **2.11. Faculty of Land Management**

193 Geodesy and Land Management

### **2.12. Law Faculty**

081 Law



**2.13. Economic Faculty**

051 Economy

071 Accounting and Taxation

072 Finance, Banking and Insurance

**2.14. Faculty of Agrarian Management**

075 Marketing

073 Management

**2.15. Faculty of Information Technology**

051 Economy (specialization «Economic Cybernetics»)

122 Computer Science

121 Software Engineering

123 Computer Engineering

**2.16. Humanitarian Pedagogical Faculty**

231 Social Work

035 Philology

291 International relations, social communications and regional studies

015 Professional Education

**2.17. Education and Research Institute of Continuing Education**

242 Tourism

## 2.1. General Regulations

The disciplines in the bachelors training curricula are structured into the following components:

- standard - 60% of the total student workload (their list, the amount and forms of attestation are determined by the standards of higher education, requirements of MES of Ukraine within the relevant field of study (specialty) and included into the curriculum of specialists training in full);

- elective:

- offered by the University - 15% of the total student workload (their list, forms of study (in-class or self-study) and attestation is defined by the academic council of the University);

- offered by students - 25% of the total student workload (their list, forms of study (in-class or self-study) and attestation is defined by working groups formed by order of the Rector of the University, recommended by academic councils of the faculties (ESI), adopted by educational and methodological University Council and approved by the Academic Council of the University. They are included into the curricula of specialists training according to the student's choice).

The curricula determine the total amount of time for study of each discipline in hours and credits of European credit transfer accumulating system (ECTS), one credit ECTS – 30 hours.

Within one field of study the curricula of Bachelor training for the first three terms (1,5 year of study) are common. Beginning with the fourth term (2-nd year of study) they differ by the elective components according to the future Master's specialty that allows graduate's of Bachelor programs to adjust to the changes on the labor market.

According to the order of rector of university from 18.12.2015 № 1424 «About development of workings curricula on 2016-2017 academic year», the elective disciplines offered by the University are the following: **«History of Ukrainian Statehood», «Ethnocultural», «Philosophy», «Ukrainian language for professional purposes», «Foreign language», «Physical education», «Safety of labor and vital activity» «Legal culture of a personality».**

The annotations of the mentioned above disciplines are given below.

### Annotations of elective disciplines offered by the University

**History of Ukrainian Statehood.** The content of the educational discipline "History of Ukrainian Statehood" is the study of basic stages of formation and development of statehood on the Ukrainian lands, distinctive state building way of the Ukrainian nation. Building of the independent state needs highly skilled, patriotically inclined, socially oriented professionals able to continue the best traditions of the Ukrainians. The response to these circumstances is the study of this discipline in universities. It will allow to master the theoretical course, creatively apply their knowledge in practice and comprehend their own laws of the state building process, orientate in political life and feel their involvement in the state-thousand-year tradition of the Ukrainian people.

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**Ethnocultural.** Content «Ethnocultural» due course need comprehensive development of strategic directions of Ukrainian statehood, achieve, the role and place of Ukrainian culture in the context of foreign culture. In the discipline given meaningful information about the origin of Ukrainian, their spiritual culture, economy, life, family. The realization of economic, social and political reforms require an appropriate level of human and national culture. Only through the mind of the individual, because of its high ethical and patriotic feelings may be real change in Ukrainian society.

**Philosophy.** The course introduces the system of knowledge in such fields of philosophy as ontology, gnoseology (theory of cognition), social philosophy, historical types of philosophy that explain the essence of relation “a human-being – the world” in its most important manifestations. The course is characterized by world outlook orientation which allows to synthesize obtained knowledge of special and humanitarian disciplines in integral conception of the world – theoretical basis of university level of specialists training.

**Ukrainian language for professional purposes.** The objective of the discipline is the improvement of the level of general language training, communicative competencies of students, practical mastering in the principles of stylistics of Ukrainian language that will provide professional communication at proper language level. The discipline is aimed at generalization and systematization of the knowledge in Ukrainian language, to form abilities and skills for optimal language behavior in professional sphere.

**Foreign language (English, German, French, Spanish).** The course develops communicative competency in students, especially the use of skills, abilities and knowledge of foreign language during business communications with the representatives from other countries specialized in various issues concerned business and labor market in agriculture, preparation to the participation in international conferences, projects and discussions as well as making presentations, business correspondence (formal and informal letters, c.v., various kinds of research articles and reports), in such way contributing into versatile development of student's personality and his/her socialization in a society speaking another language.

**Physical education.** The aim of the discipline is formation of physical culture of junior specialist and the ability to realize it in social and professional training and in family life. The objectives of the discipline are to improve students' health and develop physical abilities in accordance with the professional activity of a future specialist.

**Safety of labor and vital activity.** The aim of study of the discipline that combines such disciplines as «The fundamentals of labor protection» and «Safety of vital activity» is to obtain skills and knowledge for realization of effective professional activity providing optimal control of labor protection at enterprises, to form in students responsibility for personal and collective safety considering risk of anthropogenic emergencies, nature disasters and industrial accidents.

**Legal culture of a personality.** 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. AGROBIOLOGY FACULTY

**Dean – Viktor Zabaluyev**, Doctor of Agricultural Sciences, Professor

tel.: (044) 527-82-13, E-mail: [viaza@ukr.net](mailto:viaza@ukr.net)

Location: Building № 4, room 41<sup>a</sup>

The Faculty organizes and coordinates the educational process of bachelors in specialties:

### **201 Agronomy**

Graduating departments:

Plant Growing Tel.: (044) 527-86-26 E-mail: [dep.plant@gmail.com](mailto: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](mailto: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](mailto: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](mailto:kafedra-kormovirobnitstvo@ukr.net)

Head of department – Doctor of Agricultural Sciences, Professor G. I. Demydas.

Genetics, breeding and seed them. prof. M.O.Zelenskoho Tel.: (044) 527-86-26

E-mail: [breedingdepartment@gmail.com](mailto:breedingdepartment@gmail.com)

Head of department – Candidate of Agricultural Sciences, Associate professor V.L.Zhemoyda

Agricultural Chemistry and Agricultural Production Quality named after O. I. Dushechkin

Tel.: (044) 527-88-17 E-mail: [quality\\_chair@mail.ru](mailto: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](mailto:grunt_nubip@ukr.net)

Head of department – Doctor of Agricultural Sciences, Professor A. D. Balaev.

### **203 Horticulture and Viticulture**

Graduating departments:

Soil under Cover

Tel.: (044) 527-80-67 E-mail: [greenhouse32@ukr.net](mailto: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](mailto: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

**Bachelors  
in specialty "AGRONOMY"  
field of knowledge "Agricultural science and food"**

Form of Training:	Licensed number of persons:
– Full-time	190
– Part-time	120
training period	4 years
Credits	240 ECTS
Language of training	English, Ukrainian
Qualification of graduates	Technologist of Agronomy

**Concept of training**

Education Of bachelors from direction is aimed at training professionals able to use adaptive technology for growing and logistics crops, to ensure their economic, energy, economic and environmental efficiency, seed organizing work, agrochemical conduct and maintenance of modern technological processes in the plant, take measures of rational use and restoration of soil fertility.

**Practical training**

Students receive practical training in educational research farms of NUBiP Ukraine: NUBiP Ukraine "Agronomic Research Station," "Velykosnitynske educational and research farm named after O.V. Muzychenko," and as well as leading agricultural enterprises of different ownership.

**Proposed Topics for Bachelor theses**

- 1.State industrial and business and technology of growing crops in the particular sector.
2. Ahroekonomichnyy analysis of agriculture and technology of cultivation of field crops on the farm.
3. Technological and product quality crops, depending from factors cultivation, post harvest handling and storage.
4. Ahroekonomichnyy analysis of the feed and cultivation technology of forage crops in the economy.
5. Technology of production of high-quality seeds and the results of the investigation of varieties and hybrids under condition specific farm.
6. Optimize Power and fertilize crops.
7. Power Diagnostics crops and crop quality management.
8. Impact of resource saving, soil cultivation technologies on soil properties.
9. Evaluation of soil erosion stability under different systems of tillage and fertilization and development of anti-erosion measures.
10. Technology, organization and the results of the state qualifying examination varieties..

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of Graduates**

Place of employment of bachelors include: agricultural enterprises of different ownership, public health centers of quality of soil fertility and of crop production; Ukrainian State pomology inspection, Ukrainian State Seed Inspection, the State Committee for Land Resources, with its vertical in regions and districts, elevator company, state security service soil.



### Bachelor's Program and Curriculum in Specialty «Agronomy»

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Botany	1-2	180	6
2	Agrophysics	1	90	3
3	Chemistry	1-2	300	10
4	Agroecology basics of radiobiology	3	90	3
5	Genetics	3	90	3
6	Plant physiology with the fundamentals of biochemistry	3	120	4
7	Information Technology	1	90	3
8	Agricultural economics and business	6	120	4
9	Stockbreeding and beekeeping	4	90	3
10	Agrometeorology	2	90	3
11	Soil Science with the bases of geology	2-3	180	6
12	Agricultural pharmacology	5	90	3
13	Agricultural Entomology	4	120	4
14	Phytopathology the basics of virology	4	120	4
15	Basic research in agronomy	5	90	3
16	Standardization and management of planting products quality	5	90	3
17	Farm equipment of agricultural production	2	150	5
18	Agriculture	3-4	180	6
19	Herbology	4	120	4
20	Agrochemical chemistry	4-5	180	6
21	Fruit-growing	5	120	4
22	Vegetable growing	5	120	4
23	Plant Growing	5-7	240	8
24	Field and meadow fodder	6-7	120	4
25	Breeding and seed growing of crops	6-7	120	4
26	Technology of storage and processing of plant products	6-7	150	5
27	Technologies of Protected Cultivated	4	90	3
28	Seed Studies	7	90	3
Total for standard part			3630	121
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukrainian statehood	1	90	3
2	Ethnocultural	3	90	3
3	Philosophy	2	120	4
4	Ukrainian for professional purposes	1	120	4
5	Foreign language (English, German, French, Spanish)	1-2	150	5
6	Physical training	1-4	120	4
7	Labour and life safety	6	120	4
8	Legal culture of personality	6	90	3
Total (Disciplines offered by University)			900	30
2.2. Disciplines offered by students				
2.2.1. Specialization "Agronomy"				
1	Management in agronomy	7	90	3
2	Agricultural microbiology	3	120	4
3	Biotechnology	8	90	3
4	Fundamentals of crop production commodity	8	120	4
5	Programming and forecasting crop yields	8	120	4
6	Agricultural melioration	8	120	4
7	Industrial crops	7	120	4
8	Technological quality control crop production	7	120	4
9	Post-harvest handling and processing of plant products	8	120	4

10	Statistical analysis of agronomic research	8	120	4
11	Rational land use based	8	120	4
12	The grassland typology	8	120	4
13	Breeding and Seed-growing heterosis hybrids	8	120	4
<b>Total for Specialization</b>			<b>1500</b>	<b>50</b>
<b>2.2.2. Specialization "Agrochemistry and Soil Science"</b>				
1	Management in agronomy	7	90	3
2	Agricultural microbiology	3	120	4
3	Geology and Basics of Geomorphology	8	120	4
4	Plants biochemistry	8	90	3
5	Geochemistry	8	120	4
6	System of fertilizers application	8	150	5
7	Programming and forecasting crop yields	8	120	4
8	Soil Mapping	8	120	4
9	System Protection and Plant Quarantine	8	90	3
10	The methodology of the agrochemical investigation	8	120	4
11	Technological quality control crop production	7	120	4
12	Soil Geography	7	120	4
13	Soil Conservation	8	120	4
<b>Total for Specialization</b>			<b>1500</b>	<b>50</b>
<b>2.2.3. Specialization "Selection and Genetics of Agricultural Crops"</b>				
1	Management in agronomy	7	90	3
2	Agricultural microbiology	3	120	4
3	Biotechnology	8	90	3
4	Fundamentals of crop production commodity	8	120	4
5	Agricultural melioration	8	120	4
6	Industrial crops	7	120	4
7	Special genetic field crops	7	150	5
8	Special breeding and variety studding crops	8	360	12
9	Seed-growing of the field crops	8	330	11
<b>Total for Specialization</b>			<b>1500</b>	<b>50</b>
<b>Total (Disciplines offered by students)</b>			<b>1500</b>	<b>50</b>
<b>Total for elective part</b>			<b>2400</b>	<b>80</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training course		870	29
2	Academic Practice		720	24
3	Production Practice		300	10
<b>Bachelor Thesis writing (Graduate thesis or Project)</b>			<b>120</b>	<b>4</b>
<b>State Attestation</b>			<b>30</b>	<b>1</b>
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Botany.** The aim of the course is learning patterns of plants and vegetation as an essential component of bioenergy biosphere. As a result, the study of botany student has to learn self-study method with a microscope, the self-production of medicines and analysis of the cellular and tissue level and at the level of individual organs and the whole organism, which is of great cognitive and practical importance. Therefore, the importance given to the organization and conduct summer field practical training during which students independently collect and plants, conduct research geobotanical certain types of vegetation, which is the final stage of study and analysis of the current state of vegetation, studied ways to improve forecasting of natural plant communities. The aim of the course is

also a botany student mastery of botanical knowledge, botanical terminology necessary for conscious and competent study of other related disciplines that form the professional agricultural training profile.

**Argophysic.** The course is studied the physical, physico-chemical and biophysical processes in the system "soil-plant-active layer of the atmosphere," the basic laws process developed scientific basis, methods, means and ahrozahody rational use of natural resources. During the study abiotic factors of productivity of plants, such as moisture, heat, air, food, soil located in the column and describe their effects on plant growth and development, apply classical laws of physics. Argophysic explores the physical processes in the soil, plants and atmosphere, develop physical models, schema specifies relationships between the main components.

**Chemistry.** The program includes theoretical principles of modern inorganic chemistry and peculiarities of chemistry of biogenic elements such as Hydrogen, Halogens, Oxygen, Sulfur, Nitrogen, Fluorine, Carbon, metals. The chemical processes involving these elements and their compounds are considered from the standpoint of electrolytic dissociation, hydrolysis, redox processes and possibility of forming complex compounds. The basic classes of inorganic compounds: oxides, hydroxides, acids, salts are discussed. The analytical module includes the basics of qualitative and quantitative chemical analysis. Discusses quantitative methods of gravimetry, acid-base titration, redoxometry, complexometry. During the study of physical and colloid chemistry deals with the issues of thermodynamics, thermochemistry, theory of solutions, chemical kinetics and catalysis, the main provisions related to highly dispersed state of matter, surface phenomena and adsorption. The nomenclature, being in nature, the role in the living organism, structure, laboratory and industrial methods of obtaining, chemical properties of the main classes of organic compounds: alkanes, alkenes, alkadienes, alkynes, cycloalkanes, aromatic compounds, terpenes, and halogen derivatives, alcohols, phenols, aldehydes and ketones, carboxylic acids and their esters, anhydrides and halogenate, amines and amides, carbohydrates, amino acids and proteins, nucleic acids are studied in the course of organic chemistry.

**Agroecology basics of radiobiology.** Actuality of its study consists in that in the process of studies students meet with basic problems which exists in agrosphere. The main aspects are studying belongs acquaintance with the harmful action of pesticides, contamination of environment, as result of mineral fertilizers application, and agricultural produce - by nitrates. The special attention is devoted the degradation processes of soils: humus damages, wind and water erosion, undepressed. Questions are also consider in relation to the alternative ways of support of agriculture, bringing of organic; fertilizers and biological protection of plants, soil protection cultivation till and general ecological situation, in agro landscapes. The course considers the principles of agricultural radiobiology and radioecology; it introduces into the problems of biological impacts of ionizing irradiation, the radionuclide migration in the Environment and in the agricultural objects, the basic concepts of the radio ecological and dissymmetric monitoring; it presents the structure of the radiation control system, the methods of assessment and normalization of the doses and permissible levels of the radioactive contamination in accordance with the norms of radiation safety of Ukraine; it analyzes in details the countermeasures for reduction of the radio nuclides transfer into agricultural production and foodstuffs, as well as the ways for the ionizing irradiation application in the agricultural practice.

**Genetics.** Discipline envisages the acquaintance of students with the basic divisions of genetics modern knowledge. Includes next divisions: bases of molecular genetics, structure and functions of proteins, nucleic acids and chromosomes, mechanisms of expression of genetic information, structure of genome, cytogenetic aspects of inheritance of genes, changeability, her reasons and consequences, features of reproduction of plant organisms, basis of population genetics, some problems of the applied genetics. Discipline

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envisages listening of course of lectures, conducting of practical employments and solutioning of tasks from all basic subdivisions from molecular biology to the population genetic.

**Plant physiology with the fundamentals of biochemistry.** Discipline is one of the basic disciplines in the training of specialists in "Agronomy". Discipline involves studying the functions of plant organism and the laws of its life. The role of the discipline is to provide future specialist deep and comprehensive knowledge of the biology of the plant cell, water regime of plant organism, mechanisms of respiration and photosynthesis, mineral nutrition, plant growth and development, adaptation and mechanisms of resistance to adverse environmental factors. Acquired knowledge of plant physiology will allow future specialists in the area of agriculture practice to implement the latest achievements of science, have scientific and professional approach to technologies in crop growing and to independently develop and adjust agronomic activities by understanding the physiological processes of plant organism. The study of the chemical composition, structure, transformation of substances and energy that occur in plants. Patterns of occurrence and the relationship between the various metabolic pathways principles of regulation in plant cells. Establishing patterns of metabolism major classes of organic compounds - carbohydrates, proteins, fats, vitamins, etc., to create conditions for crops that provide the largest amount of receiving substance.

**Information technologies.** In the lecture course, students are introduced to the concepts of information, its properties and use of computers, the principles of input, storage and processing of information, its purpose in the professional activity and life of mankind. The main part of the course is devoted to studying and mastering basic computer technology, which is the most widely used for processing of business information - the study and practical use of text and spreadsheet processes. The development of this technology is carried out in a problematic term, i.e. students not only learn the basics of informatics, and acquire practical skills in computer technology that allows the preparation of agronomic training on international standards.

**Agricultural economics and business.** A course foresees the study economics of the system of agrarian relations of productions in intercommunication with development of productive forces of agriculture. Criteria and indexes, which characterize development of agricultural production, ways and methods of the rational use of earth, financial and labours resources, are herein examined. The necessity of development and improvement of resource potential of agriculture opens up, the method of determination of economic efficiency of agricultural industries is given. The terms of forming of prime price and profitability of products of agriculture, development and functioning of market of food light up. The problems of intensive development of industries of agriculture are studied on the basis of the wide use of industrial technologies, rational placing and specialization of agricultural production on the base of agro industrial integration in the conditions of relations of markets.

**Stockbreeding and beekeeping.** The program stipulates studying a condition of the basic ways of development of animal industries at the present stage in Ukraine and the advanced countries of the world, biological bases of cultivation and feeding of agricultural animals, and also "know-how" production animal industries in conditions of an intensification of an agricultural production in economy of different patterns of ownership, finding of habits of an estimation of the ex-terrier, the constitution of animal different kinds of productivity, and also definition of norms of feeding and drawing up of diets for separate kinds of agricultural animals. Study module "Beekeeping" required to get the students knowledge on plants honey and pollination of crops by bees. Expected learning products plants collected bees for their power and provide a marketable product. Served as melliferous plants characteristic of plants, their classification, use to create tricks in different periods of the season. Reveals the role of bees as pollinators of plants,

equipment and organization pollination of various crops, effectiveness in increasing yields of fruit and seeds.

**Agrometeorology.** The discipline program provides for studying of agrometeorological factors influence the performance of agricultural production. The discipline focuses on the modern methods for assessing climate from the standpoint of agricultural production and agro-climatic zoning. The course demonstrates the hazardous weather activity for agriculture and proposes the measures to combat them. The course of discipline provides examples of agro-climatic justification agrotechnical and reclamation activities. The modern and advanced methods of agrometeorological observation and agrometeorological forecasts are considered in the course. In addition, students will understand and analyze the importance agrometeorological ensure of agricultural production.

**Soil Science with the bases of geology.** Soil science is science, which studies genesis, development, structure, composition, properties and laws of geographical distribution of soils, ways of their rational use and restoration of fertility. Knowledge of theoretical bases of soil science enables to understand and grasp problems and prospects of land use. Purpose of the course "Soil Science with the Bases of Geology " is deep cognition and study of the soil cover as environment of agricultural crops growing, and also place of existence of living organisms, study of structure and basic properties of soils, their mineralogical composition, laws of geographical distribution of soils, cognition of natural processes of soil.

**Agricultural pharmacology.** Contents of subject involves the study of pesticides, their production and toxicological-hygienic characteristics, of modern classifications of pesticide, regulations their application.

**Agricultural Entomology.** The course deals with Introduction to entomology and insect-pest management, including morphology, life processes, ecology and biology of key agricultural pests. Students are provides with knowledge of tactics of population suppression, and ecological backlash and level of entomophagous efficacy.

**Phytopathology the basics of virology.** Plant pathology studies phytopathology, reasons of their appearance features in development, symtomatology pathologies, species composition, morphology and bioecology of agents plant against pathogens, methods and systems of immunity, protection. On the basis of knowledges of phytopathology methods should be able determine of symptoms disease to carry out identify of pathogens and diagnose of diseases. On explicit data its need to conduct phytopathology monitoring as a results which it is differentiated to realize the prophylactic and therapeutic measures of control plant disease. Main purpose of study course is acquisition a theoretical foundations and formation of practical skills of students who will investigate plant viruses and methods of struggle of viral spread. The practical part of course includes study modern methods which can be used by a work with plant viruses, especially for viral diagnostic and identification by means of biological testing, electron microscopy and immunoassay methods also for getting a unviral landing material by microcline method of reproduction. Knowledge of above methods is necessary for training of high educational specialists in agriculture.

**Basics of scientific research in agronomy.** Lectures on discipline covers the theoretical foundations of research and their application in practice, planning and research in agronomy, application of statistical methods in agronomic research and a plan of research using application software. Laboratory - practical course dedicated to the study of methods and algorithms statistical analysis of experimental data, variation, variance, correlation, regression, Pearson analysis, probit analysis.

**Standardization and management of planting products quality.** The course includes the study of the following issues: the goals and objectives of standardization, standardization essence of the science, teaching the basics of standardization, product

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quality issues, standardization of quality products and the methods of control, international standards. General information on national and international experience in quality management, certification and metrology software. The development of the current requirements for plant products intended for the purpose of producing competitive products. The development of effective measures of quality control in the production of high-quality, environmentally friendly, organic and competitive products. The development of principles and procedures for certification of products for the domestic market and export. Features creation and implementation in production systems ISO 9000 with the following quality management system accreditation. While teaching discipline taken into account existing laws on standardization, certification and safety of plant products.

**Farm equipment of agricultural production.** The general issue of mechanization processes in crop, destination, general structure and workflow of machines for growing and harvesting crops and general issues mashynovykorystannya in crop. Study ways of regulating the working process and setting up machines and methods to control performance of the machines in a production environment. Consolidation of theoretical knowledge occurs during training practice.

**Agriculture.** Following the completion of this course the student should know the task agriculture as an industry, discipline and science; possess the scientific principles and laws of agriculture. Know the factors of life of plants and field methods to be able to introduce regulation in agriculture. The student must know the basic soil types and rates of fertility regulation and ways of reproduction of soil fertility; the scientific basis of crop rotation, principles of design, development patterns and development acreage field crop rotations. To know the scientific basis of measures, methods and systems of cultivation; agronomic requirements for sowing crops i care measures for crops; types of soil erosion and deflation i measures to prevent them; features of farming in contaminated areas. Master the scientific principles of farming systems and their features in different soil and climatic zones; the features of the system of industrial, environmental, organic (biological) systems and erosion control farming no-till, mini-till.

**Herbology.** Discipline is one of the basic professional training in agronomy. In the lecture course covers the scientific foundations of Herbology, description and place segetal plants in modern agrophytocenoses and its negative impact on crops. The course is finalized to the development of measures and systems for the control of weeds in modern farming systems. Laboratory course devoted to the study of weeds and the acquisition of practical skills of development of systems of weed control in agricultural crops.

**Agrochemical chemistry (agrochemistry).** The goal of the studding of the theoretical materials and laboratory classes are mastering for bachelor of the agronomy in theoretical knowledge and practical skills into basic of plant nutrition, their chemical composition and nutrients take up, soil properties in interaction with plant nutrition and fertilizers application, fertilizers classifications, fertilizers types and kinds, fertilizers production, fertilizers using and fertilizers influence on environment. And, this discipline helps formation practical skills in determination of the level of the crop nutrients supply, levels of the nutrients supply of the soils, identify of the fertilizers kinds and fertilizers forms, their interaction with soils, determination of the soil need in soil melioration.

**Fruit growing.** The program provides study of fruit, berry plants and grapes - their value, morphological and biological characteristics, methods of propagation, rootstocks, the structure of fruit nurseries and technology of growing seedlings, lay the fruit trees, systems maintenance and cultivation in gardens, fertilization and irrigation plantation, forming and trimming of fruit trees, care for the harvest and other work in gardens, preparing and harvesting technology, biological features and technology of growing small crops and grapes.



**Vegetable growing.** This lecture course covers the issues of biological foundations of vegetables, the features of the preparation and fertilization of soil, plant propagation, the seedlings' planting into the open ground, the common measures for plants' caring, the harvest and cultivation technology of the main vegetables such as: white-head cabbage, red-head cabbage, cauliflower, tomato, pepper, eggplant, cucumber, zucchini, squash, carrots, beet, onion, lettuce, spinach, fennel, rhubarb, sorrel. The morphological characteristics of vegetable crops and their classification are studying in the laboratory practical classes. The ways of propagation, the calculations in seedlings' needs of different vegetable crops are also considered. The methods of control and the regulation of temperature, lighting regime, carbon dioxide, humidity and nutrient regime are in this theme. The estimation in seeds' needs of various vegetables, the scheme of sowing and feeding area are considered.

**Plant growing.** The course forms future specialists with knowledge and skills of technological measures for maximizing the biological potential of yield cultivated crops; Includes studying of the trends in development of plant growing industry in Ukraine, commercial value, diversity of use, distribution and yield potential of crops and samples of their implementation in production; environmental and biological and agrochemical bases of crop; advanced cultivation technologies for getting high environmentally friendly yields of crops in different soil and climatic conditions of Ukraine; requirements of state standards for the quality of crop production and ways of it improving; measures for reducing to a minimum losing of crop during harvesting, transportation.

**Field and meadow fodder.** The discipline program provides for studying of scientific-grounded system of organization-managemental, biological, technological and economical measures of production, conservation and storage of fodder. The course provides for studying of the system of organization measures and technological methods, aimed to increase natural forage land productivity, creation of sowed hayfields and pastures, and efficient use of them.

**Breeding and seed growing of crops.** Discipline envisages an acquaintance and fixing of knowledge from: tasks to the breeding and seed-grower in modern terms; theoretical principles and methods of breeding; essences of plant-breeding process; State qualifying examination; studying of basic quality signs, variety and hybrids of basic cultures that is brought to the State register varieties of plants of Ukraine; organization and technology of conduct of primary and certificated seed-growing; concepts about ecology of seed and ecological seed-grower; State and farming variety and seminal control of sowing and quality of seed; documentation quality sowing and seminal material; adaptation of home seed-grower to the international scheme and procedures; relations between breeders, producers and consumers of seminal products. Discipline envisages listening of course of lectures, implementation of practical and departure studying.

**Technology of storage and processing of plant products.** The course examines on the final course for the "Bachelor" when students have already learned agricultural techniques of production cereals, legumes, groats, oil, technical, vegetable and fruit plants. The program includes technology of post-harvest handling, storage and primary processing grains, cereals, legumes for the different purpose, fruits, vegetables, potatoes and industrial crops (sugar beet, flax, hops, essential oil plants). The program of discipline provides study keeping capacity (the ability to be stored) harvest yield and its ability to provide certain processed products obtained under favorable growing conditions and unfavorable conditions and how affecting factors of securities, agrochemical on the quality of fresh or processed products. The program of discipline included the basics of drying, cooling, chemical preservation and storage of grain and other products. The keeping capacity of potatoes and vegetables depend on the factors of cultivation, post-harvest handling must learn. Theoretical foundations of long-term storage, the foundations of

primary processing of plant products must be learned. Students must learn the requirements of the standards and methods of quality evaluation crop production.

**Technologies of Protected Cultivated.** The program of discipline's are subscribes for the gist of the greenhouses vegetable, mushroom's and flower growing. Describes the biological capacities of the objects growing for the terms of Protected Cultivated, technological methods for the growing of the vegetable, flower crops and mushrooms. In the course is devoted to the greenhouse's constructions for the crops and it's using. The gist of growing the ecological production's are describes.

**Seed Studies.** Discipline involves mastering the knowledge of the theoretical and practical principles of forming sowing, yield and varietal qualities. Includes studying of the theoretical foundations of formation, features of passing ontogenesis and organogenesis stages, anatomy, morphology and chemical composition of the seeds, physical and mechanical properties of the seeds and methods for removing seeds from dormancy, energy of germination, vigor of germination, vitality and longevity of seeds, breathing and injuring of seeds. After studying the discipline, student should to know modern cultivation technologies, harvesting, cleaning and storage of high-quality seeds of field crops, national and international legislative and regulatory framework for production, sale and using of seeds, methods for determining sowing qualities of seeds, control inside the farm and state control of seed producing in compliance with the rules at all stages, state inspection of seed studies of cereal crops as a system of producing control, implementation and using of cereal seeds.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines "History of Ukrainian Statehood", "Ethnocultural", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language (English, German, French, Spanish)", "Physical Training", "Labour and Life Safety", "Legal Personal Culture" see Section 2.1.

### **2.2. Disciplines offered by students**

#### **2.2.1. Specialization "Agronomy"**

**Management in agronomy.** The purpose of discipline - to give students a comprehensive system of knowledge of nature management in agricultural enterprises and organizations, the skills process control in farms; provided that the impact of economic structures; diagnosis and designing system of agricultural management, adequate goals and objectives of market economy in agriculture. Ability of future professionals to streamline the organizational structure and management system to form the company, to ensure the dynamic development and competitiveness.

**Agricultural microbiology.** The subject give knowledge about morphology, structure, classification, genetic, physiology and ecology of basis groups of microorganisms, their role in utilization of complex plant and animal remains, breaking them down into simpler chemical forms which are returned to the soil. The importance of microorganisms in human practice activity, microorganisms interaction between themselves and high plants, give knowledge about microbiological means of protection against diseases and pests of plant, perspective means of plant protection for graving harvest agricultural crops.

**Biotechnology.** Discipline focuses on cultivation of isolated cells and tissues, callus and suspension cultures, microclonal propagation of plants and their recovery from viral

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infections, morphogenesis and regeneration of plants in vitro (organogenesis, embryogenesis, rhizogenesis), culture of isolated protoplasts as a basis of cell engineering, selection of plants in vitro, cell and genetic engineering, methods for transgenic plants obtaining.

**Fundamentals of crop production commodity.** The discipline that studies the technological characteristics of different types of commodity crop production, methods of preparation of various grain products for various purposes, horticultural, industrial raw materials, processed grains, fruit and vegetables, formatting rules accompanying documents and methodology of consignments of crop production.

**Programming and forecasting crop yields.** The aim is obtaining of high, stable and predictable yields of crops. The solution is possible if there is a quantitative determination of the impact of natural, organizational and technological factors on growth, development and formation of plant productivity, establishing degree of ensuring agricultural cultures by these factors in a specific soil and climatic conditions and establishment of necessary resources for their regulation, what is the main task of programming the yields. Soil fertility and yields programming is aimed on organization of agrophytocenoses, as a system for getting maximum productivity of it. Providing the population by crop production will be carried out mainly by the growth of yields, by introduction of scientific and technological achievements in agriculture and plant growing. The set of measures to achieving of this goal incorporate programming course of soil fertility and yields of agricultural crops. It is based on the need of the plants in essential resources.

**Agricultural melioration.** The discipline introduces students to the technological characteristics of applying hydroengineering, land clearance, chemical, agrotechnical and forest reclamations and forms students' competence in the technology of agricultural production on reclaimed lands. The discipline focuses on the development of new agricultural technology of irrigation (micro-, drip irrigation, etc.), which enables to increase significantly the yield of crops in terms of increasing climate aridity. The discipline ensures the students to obtain the basis of professional knowledge to improve soil productivity as well as preserve soil fertility in different climatic zones of Ukraine.

**Industrial crops.** The course covers the environmental and economic principles of crops accommodation, using, origin, distribution, yield, production volumes. Describes the systematic, morphological, anatomical and biological features of crops; requirements for growing conditions. Shows the essence of adaptive, cost-effective, environmentally safe technologies of each culture in the zonal section; describes its placement in rotation, fertilization system, the system of soil preparation and seed sowing process, control of weeds, diseases and pests, harvesting, primary processing products.

**Technological quality control crop production.** The goal of the studying of the theoretical materials and laboratory classes are mastering for bachelor of the agronomy in theoretical knowledge and practical skills in basis of the protein metabolism, carbohydrates metabolism, lipids metabolism, vitamins complex formation, mineral complex formation into crops and their management during of the plant vegetation into modern crop production systems according to climatic conditions, weather conditions, soil fertility, sorts and hybrids features for improving of the quality of crop products according to standards.

**Post-harvest handling and processing of plant products.** The course examines the final course for the "Bachelor". The program includes the study of technology post-harvest handling and preparation plant production to storage, processing or selling. Students study question of assessing the quality of the harvest of agricultural products and organization of the handling yield with the formation of corresponding technological equipment of primary, secondary and special handling. The questions bases of flour production from different types of grains, including soft and hard wheat must be learn. The program also has sections technologies of cereals, pasta, oil and processing of fruits and

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vegetables (production of canned products, pickling, drying, etc.). Program opens themes processing of raw industrial crops (sugar beet, flax, hops, etc.).

**Statistical analysis of agronomic research.** The purpose of the course to give theoretical and practical knowledge of the main methods of agronomic research, the ability of independent research and statistical evaluation of data for future agricultural specialists. The objects of study are variational data series of observations, soils. The subject of study are statistical criteria of quality research, information indicators of growth and development of plants, the environmental conditions. The program brings together two sections: mathematical statistics and analysis of variational series; application of statistical methods in agronomic research.

**Rational land use based.** Efficient and effective use of land remain issues of concern in agricultural production. The basis of effective agricultural are the proper land use organization. And its basis is performed systematic, coherent organization of all elements of management. The course reveals the features of the state policy on formation of rational land ownership and land use, organizing areas of agricultural enterprises with the creation of spatial conditions that ensure the ecological and economic optimization of the use and protection of agricultural land, the introduction of advanced forms of management of land use, improving the value and location of the land, the system of crop rotation and hay-pasture rotation. It reveals a system of measures to preserve and improve the natural landscapes, restoration and improvement of soil fertility, protection from erosion.

**The grassland typology.** The discipline program familiarizes students with distribution and composition of grasslands and their soil, hydrological and weather conditions. The course identifies ways to improve natural pastures and their rational use. The discipline focuses on the of transformation (change) meadow vegetation ways depending on use and farming items. The course covers of discipline the transformation (change) of meadow formation ways depending on use and agricultural methods. The discipline offers scientific measures on ecologizing and biologization grassland ecosystems.

**Breeding and Seed-growing heterosis hybrids.** The contemporary concepts of heterosis and conformities of its displays, the types of hybrid and technology breeding process of their creation are reporting by course. The types initial material and methods of creating inbred lines, specificity rating its combining ability, selecting hybrids combinations different genetic structure and synthetic varieties are displaying. Discipline involves the assimilation of methods industrial production of hybrid seed field crops by fertile and sterile base.

### **2.2.2. Specialization “Agrochemistry and Soil Science”**

**Management in agronomy.** The purpose of discipline - to give students a comprehensive system of knowledge of nature management in agricultural enterprises and organizations, the skills process control in farms; provided that the impact of economic structures; diagnosis and designing system of agricultural management, adequate goals and objectives of market economy in agriculture. Ability of future professionals to streamline the organizational structure and management system to form the company, to ensure the dynamic development and competitiveness.

**Agricultural microbiology.** The subject give knowledge about morphology, structure, classification, genetic, physiology and ecology of basis groups of microorganisms, their role in utilization of complex plant and animal remains, breaking them down into simpler chemical forms which are returned to the soil. The importance of microorganisms in human practice activity, microorganisms interaction between themselves and high plants, give knowledge about microbiological means of protection

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against diseases and pests of plant, perspective means of plant protection for graving harvest agricultural crops.

**Geology and Basics of Geomorphology.** Geologic conditions determine the origin, evolution and distribution of soil cover. Rocks along with other landscape conditions, including climate and water, determine the type of soil genesis. Geology - the science that studies the composition, structure and history of the Earth and the processes that occur inside and on the surface. The main goal of "Geology and Basics of Geomorphology" course is the study of the material composition of the Earth crust, which is the mineral basis of all soils and subsoils, familiarity with the most important minerals and rocks.

**Plants biochemistry.** The goal of the studding of the theoretical materials and laboratory classes are mastering for bachelor of the agrochemistry and soil science in theoretical knowledge about compositions and structure of the main organic compounds, their functions and their means for crops, the biosynthesis processes and compounds metabolisms, special feature biochemistry of the different crop groups. And, the discipline goal is mastering in practical skills in biochemical crop analyses.

**Geochemistry.** Geochemistry reveals the mechanisms of flow and transformation of certain chemical elements in different environments, including soils, natural waters and atmosphere, depending on existing conditions; and studies laws of biogeochemical cycling of substances in the landscapes. Knowledge of geochemistry is used in the soil survey, soil monitoring, in agrochemical research, development of methods of fertilization and amelioration.

**System of the fertilizers application.** The goal of the studding of the theoretical materials and laboratory classes are mastering for bachelor of the agrochemistry and soil science in theoretical knowledge in realizing of the modern systems of the fertilizers fertilization for crops based on determination of the balance and cycle of the nutrients in crop rotations, determination of biological features nutrition and fertilization for direct crops according to levels of the soil fertility and prognosticate crop yield for different crop production systems.

**Programming and forecasting crop yields.** The goal of the studding of the theoretical materials and laboratory classes are mastering for bachelor of the agrochemistry and soil science in theoretical knowledge into complex structural generalization of the information about regulated and unregulated factors of the crop growing and making of the models of the crop yield formation and programing of the productivity parameters with creating of the mathematic functional interdependency.

**Soil Mapping.** The main purpose of the subject "Soil Mapping" is research of land surface coverage of the Earth and respective regularities, as well as approaches for required calculations, providing and incorporation of the results to topographic maps. In the study process students learn the information about topography measures in nature, analyze methods, and construction and application of the soil, ecological, special maps. During the study period students produce a geomorphologic profile of a region, develop legends for the thematic maps, and carry out a map basic for further ecological research purposes.

**System Protection and Plant Quarantine.** Presented by modern methods and technologies for plant protection. The course includes information on specific types of pests and pathogens under different production conditions. Study pest control methods based on the use Entomophages and biologics. As a result, using the acquired knowledge, students will be able to increase crop yields and quality. Modern task of phyto sanitary legislation, procedures and methods of phytosanitary examination, biology and other quarantine pests absent in the country.

**The methodology of the agrochemical investigation.** The goal of the studding of the theoretical materials and laboratory classes are mastering for bachelor of the agrochemistry and soil science in theoretical knowledge into planning, elaboration of the

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methods for agrochemical investigation, systematization, analyzing of the investigation results and giving of the recommendation for optimization of the fertilizers using such as effective factor for increasing of the crop productivity. The program of the discipline includes planning of the agrochemical investigation, methods and technologies of the making of the field trials, lysimetric experiments, greenhouse experiments, methods and technologies of the making of laboratory analyses for soils, plants and fertilizers, types and methods for the monitoring of the crop nutrition, methods selection, methods of the statistical analyses.

**Technological quality control crop production.** The goal of the studding of the theoretical materials and laboratory classes are mastering for bachelor of the agrochemistry and soil science in theoretical knowledge and practical skills into optimization of the formation of the quality of crop products during the vegetation by making of the technical elements for improvement of the agrochemicals and other agrosources in modern crop rotations based on abiotic environmental factors, biotic environmental factors and anthropogenic factors, determination of the nutrients cycle according to crop demands, production demands and power management. These knowledge and skills lets to make and effective implement the complex of the operations for optimization of crop nutrition for improvement of the quality of crop products.

**Soil Geography.** The course "Soil Geography" studies the laws of geographical distribution, genesis, description of the main soil types in Ukraine, their physical and chemical properties, morphological description of profiles. The problem of classification and taxonomy of soils is discussed. Soil resources of Polissya, Forest-Steppe, Steppe, Dry Steppe, swampy, waterlogged and saline areas, the Carpathians and the Crimea mountainous regions are described.

**Soil Conservation.** The course studies the main types of soil degradation and measures for their prevention, reduction or complete removal action. The aim of the course is to provide students obtaining knowledge about the current state of land resources of Ukraine, laws of Ukraine on land protection, causes, extents and consequences of land resources degradation as a result of natural processes and human activities as well as methods of preventing degradation and soil fertility reproduction.

### **2.2.3. Specialization "Selection and Genetics of Agricultural Crops"**

**Management in agronomy.** The purpose of discipline - to give students a comprehensive system of knowledge of nature management in agricultural enterprises and organizations, the skills process control in farms; provided that the impact of economic structures; diagnosis and designing system of agricultural management, adequate goals and objectives of market economy in agriculture. Ability of future professionals to streamline the organizational structure and management system to form the company, to ensure the dynamic development and competitiveness.

**Agricultural microbiology.** The subject give knowledge about morphology, structure, classification, genetic, physiology and ecology of basis groups of microorganisms, their role in utilization of complex plant and animal remains, breaking them down into simpler chemical forms which are returned to the soil. The importance of microorganisms in human practice activity, microorganisms interaction between themselves and high plants, give knowledge about microbiological means of protection against diseases and pests of plant, perspective means of plant protection for graving harvest agricultural crops.

**Biotechnology.** Discipline focuses on cultivation of isolated cells and tissues, callus and suspension cultures, microclonal propagation of plants and their recovery from viral infections, morphogenesis and regeneration of plants in vitro (organogenesis,

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embryogenesis, rhizogenesis), culture of isolated protoplasts as a basis of cell engineering, selection of plants in vitro, cell and genetic engineering, methods for transgenic plants obtaining.

**Fundamentals of crop production commodity.** The discipline that studies the technological characteristics of different types of commodity crop production, methods of preparation of various grain crops for various purposes, horticultural, industrial raw materials, processed grains, fruit and vegetables, formatting rules accompanying documents and methodology of consignments of crop production.

**Agricultural melioration.** The discipline introduces students to the technological characteristics of applying hydroengineering, land clearance, chemical, agrotechnical and forest reclamations and forms students' competence in the technology of agricultural production on reclaimed lands. The discipline focuses on the development of new agricultural technology of irrigation (micro-, drip irrigation, etc.), which enables to increase significantly the yield of crops in terms of increasing climate aridity. The discipline ensures the students to obtain the basis of professional knowledge to improve soil productivity as well as preserve soil fertility in different climatic zones of Ukraine.

**Industrial crops.** The course covers the environmental and economic principles of crops accommodation, using, origin, distribution, yield, production volumes. Describes the systematic, morphological, anatomical and biological features of crops; requirements for growing conditions. Shows the essence of adaptive, cost-effective, environmentally safe technologies of each culture in the zonal section; describes its placement in rotation, fertilization system, the system of soil preparation and seed sowing process, control of weeds, diseases and pests, harvesting, primary processing products.

**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 for propagation of plants. Classification and karyology of the primary agricultural crops: wheat, rye, barley, soya, pea, beet, corn, potato, sunflower, flax. The genetics of morphological, physiological and biochemical traits. The genetics mechanisms of plants resistance control against the agents of disease and invaders. Principal directions of selection by primary agricultural crops.

**Special breeding and variety studding crops.** Methods of breeding crops: selection, hybridization, polyploidy, induced mutagenesis, heterosis, biotechnology and genetic engineering. Laboratory evaluation of breeding material by product quality, the studding species, varieties and varietal characteristics appropriate and their cultivation technology, variety certification, agricultural variety crops suitable for dissemination in Ukraine.

**Seed-growing of the field crops.** Theoretical bases of seed-growing. A law of Ukraine "About seed and planting material". Organizational principles of seed-growing. A variety and hybrid are objects of seed-growing. Principles of conduct of seed-growing in economic conditions. Systems of seed-growing of basic crops. A production of seed is in the primary links of its reproduction. A value of biotechnology and genetic engineering in the receipt of high-quality seed. Attestation requirements are to the subjects of seed-growing. The using of heterosis in a seed-growing. Features of seed-growing on sterile basis. Ecology of seed and ecological seed-growing. Principles of zonal seed-growing. The adaptation of national seed-growing to the international charts and procedures. International organization of control quality of seed. State and farming control in a seed-growing. The variety certification.

**Bachelors**  
**in specialty "HORTICULTURE AND VITICULTURE"**  
**field of knowledge "Agricultural science and food"**

Form of Training:	Licensed number of persons:
– Full-time	60
– Part-time	30
training period	4 years
Credits	240 ECTS
Language of training	English, Ukrainian
Qualification of graduates	Technologist of Agronomy

**Concept of training**

Preparation of bachelors in the specialty focused on current and future trends in the development of horticulture and viticulture. Education Bachelor specialty allows to acquire special skills and knowledge of innovative character in Horticulture to produce high quality and diversification of produce for domestic consumption and export. A graduate of this specialty theoretically and practically prepared, has the knowledge and skills of modern technologies in the field of horticulture and viticulture.

**Practical training**

Students undergo practical training in educational farms NUBiP Ukraine: NUBiP Ukraine "Agronomic Research Station," "Velykosnitynske educational and research farm named after O.V. Muzychenko," as well as advanced agricultural enterprises of different ownership forms, collection nurseries teaching and research fields NUBiP" Produce Garden "research institutions Academy of Agricultural Sciences and National Academy of Sciences of Ukraine, state-ampelohrafichnyh pomology inspections.

**Proposed Topics for Bachelor theses**

1. Features of new varieties of fruit, berry and nut crops and study their growth and fruiting.
2. Evaluation methods (measures) aimed at improving production technologies fruits and planting material of fruit, berry, nut and vine crops.
3. Hospodarsko biology grade varieties (heterosis or hybrid) different types of vegetables in order to highlight the most suitable for growing conditions in certain areas.
4. Vyvchennya some 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 .
5. Introduction of rare species of vegetables in order to highlight the most suitable for growing conditions in certain areas.
6. Optimizations of technology's methods of vegetable growing in different type's greenhouses.
7. Investigations of technological aspects of flower growing in Protected Cultivated.
8. Investigations of mushroom's technologies depended to growing's terms and technology's elements.
9. Experimental investigations for capacities of edibles and medical mushrooms in laboratories terms.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of Graduates**

Place of employment of bachelors include: agricultural enterprises of different ownership, farms, greenhouse and mushroom plants, the structure of the supply of equipment and materials for greenhouses, structures engaged in landscape gardening, delivery of equipment, seeds, planting material, protection plants and materials for orchards, vineyards, research institutions.

### Bachelor`s Program and Curriculum in Specialty «Horticulture and Viticulture»

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Botany	1-2	150	5
2	Agrophysics	2	90	3
3	Chemistry	1-2	180	6
4	Genetics	3	120	4
5	Plant physiology	2	120	4
6	Information Technology	1	90	3
7	Economics and business, management	8	90	3
8	Viticulture	6-7	150	5
9	Agrometeorology	2	90	3
10	Soil Science with the bases of geology	3	180	6
11	Ahrofarmacology	6	90	3
12	Entomology	5	120	4
13	Phytopathology	4	120	4
14	Basic research	6	90	3
15	Standardization and quality control of Horticulture and viticulture	3	90	3
16	Farm equipment and instruments	3	90	3
17	Farming	3	150	5
18	Mushroom growing	4	90	3
19	Agrochemicals	5	150	5
20	Fruit-growing	3-5	300	10
21	Vegetable growing	4-6	270	9
22	Plant Growing	4	150	5
23	Introduction to Specialty	1	90	3
24	Selection of vegetable, fruit and berry crops	6-7	120	4
25	Technology of storage and processing of of fruits and vegetables	8	150	5
26	Agrochemical service for vegetable growing, horticulture and viticulture	6	120	4
27	Vegetable growing in Protected Cultivated	7-8	180	6
Total for standard part			3630	121
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukrainian statehood	1	90	3
2	Ethnocultural	1	90	3
3	Philosophy	1	120	4
4	Ukrainian for professional purposes	1	120	4
5	Foreign language (English, German, French, Spanish)	1-2	150	5
6	Physical training	1-4	120	4
7	Labour and life safety	2	120	4
8	Legal culture of personality	8	90	3
Total (Disciplines offered by University)			900	30
2.2. Disciplines offered by students				
2.2.1. Specialization “Fruit and Vegetable Science and Viticulture”				
1	Herbology	4	90	3
2	Commodity fruits and vegetables	8	120	4
3	Ampelography	7	90	3
4	Agricultural microbiology	2	90	3
5	Biotechnology	6	90	3
6	Virology	5	90	3
7	Potato	7	90	3
8	Ornamental horticulture	8	90	3

9	Land reclamation	8	90	3
10	Nursery	5	120	4
11	Seeds of vegetable crops	8	90	3
12	Olegrafia	7	90	3
13	Pomology	7	150	5
14	Greenhouses	5	120	5
15	Beekeeping	4	90	3
<b>Total for Specialization</b>			<b>1500</b>	<b>50</b>
<b>Total (Disciplines offered by students)</b>			<b>1500</b>	<b>50</b>
<b>Total for elective part</b>			<b>2400</b>	<b>80</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training course		870	29
2	Academic Practice		720	24
3	Production Practice		300	10
<b>Bachelor Thesis writing (Graduate thesis or Project)</b>			<b>120</b>	<b>4</b>
<b>State Attestation</b>			<b>30</b>	<b>1</b>
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Botany.** The aim of the course is learning patterns of plants and vegetation as an essential component of bioenergy biosphere. As a result, the study of botany student has to learn self-study method with a microscope, the self-production of medicines and analysis of the cellular and tissue level and at the level of individual organs and the whole organism, which is of great cognitive and practical importance. Therefore, the importance given to the organization and conduct summer field practical training during which students independently collect and plants, conduct research geobotanical certain types of vegetation, which is the final stage of study and analysis of the current state of vegetation, studied ways to improve forecasting of natural plant communities. The aim of the course is also a botany student mastery of botanical knowledge, botanical terminology necessary for conscious and competent study of other related disciplines that form the professional agricultural training profile.

**Agrophysics.** The aim of the course by students are obtain knowledge about the physical basis for the formation of berry productivity, agricultural and perennial plants. Argophysics studies the basic regularities of the production mechanism, methods and tools for optimizing the parameters agrophysical soil properties, gives reasons for forecasts a comfortable living environment fruits, berries, vegetables and other plants. On the basis of knowledge developed agrophysical scientific basis, methods, means and ahrozahody rational use of natural resources.

**Chemistry.** The theoretical principles of modern inorganic and analytical chemistry are considered. Basic laws of chemical reactions, especially processes that occur in nature, chemical and agricultural production are studied. Attention is focused on the peculiarities of chemistry of compounds of biogenic elements, their role in the life of garden crops. The essence, advantages and disadvantages of various methods of analytical experiment are considered. Attention is drawn to the applied aspects of the methods of qualitative and quantitative chemical analysis of natural and artificial objects that are of great importance in horticulture and viticulture: soils, mineral fertilizers, plant protection products and seed treatment, horticultural products and viticulture etc. The main theoretical positions of organic chemistry, nomenclature, methods of obtaining and

applying the main classes of organic compounds in various branches of agricultural production, their biological effect and the impact on the environment, and the mechanisms of chemical processes occurring in natural objects are studied.

**Genetics.** Discipline envisages the acquaintance of students with the basic divisions of genetics modern knowledge. Includes next divisions: bases of molecular genetics, structure and functions of proteins, nucleic acids and chromosomes, mechanisms of expression of genetic information, structure to the genome, cytogenetic aspects of inheritance of genes, changeability, her reasons and consequences, genetic systems of reproduction of plant organisms, genetic mechanisms of firmness of plants against the causative agents of illnesses and vermines, basis of population genetics. Discipline envisages listening of course of lectures, realization of practical employments and solution of tasks from all basic subdivisions from molecular biology to the population.

**Plant physiology.** Discipline is one of the basic disciplines in the training of specialists in "Agronomy". Discipline involves studying the functions of plant organism and the laws of its life. The role of the discipline is to provide future specialist deep and comprehensive knowledge of the biology of the plant cell, water regime of plant organism, mechanisms of respiration and photosynthesis, mineral nutrition, plant growth and development, adaptation and mechanisms of resistance to adverse environmental factors. Acquired knowledge of plant physiology will allow future specialists in the area of agriculture practice to implement the latest achievements of science, have scientific and professional approach to technologies in crop growing and to independently develop and adjust agronomic activities by understanding the physiological processes of plant organism.

**Information technologies.** In the lecture course, students are introduced to the concepts of information, its properties and use of computers, the principles of input, storage and processing of information, its purpose in the professional activity and life of mankind. The main part of the course is devoted to studying and mastering basic computer technology, which is the most widely used for processing of business information - the study and practical use of text and spreadsheet processes. The development of this technology is carried out in a problematic term, i.e. students not only learn the basics of informatics, and acquire practical skills in computer technology that allows the preparation of agronomic training on international standards.

**Economics, business and management.** A course foresees the study economics of the system of agrarian relations of productions in intercommunication with development of productive forces of agriculture. Criteria and indexes, which characterize development of agricultural production, ways and methods of the rational use of earth, financial and labours resources, are herein examined. The necessity of development and improvement of resource potential of agriculture opens up, the method of determination of economic efficiency of agricultural industries is given. The terms of forming of prime price and profitability of products of agriculture, development and functioning of market of food light up. The problems of intensive development of industries of agriculture are studied on the basis of the wide use of industrial technologies, rational placing and specialization of agricultural production on the base of agro industrial integration in the conditions of relations of markets.

**Viticulture.** The objective of the study subjects are: formation of students' comprehensive knowledge (competencies) culture of grapes, including historical and botanical classification, biology and ecology of grape plants, technologies of industrial crops (forming and trimming bushes, cultivation, fertilization, irrigation, plant protection from diseases and pests) and the production of planting material and ways to improve the assortment. The issue of table viticulture and the production of dried products and features in non-traditional grape growing areas of viticulture (Forest-steppe, Polesie).



**Agricultural meteorology.** Subject program provides for main issues of agricultural meteorology, influence of weather and climate changes on agricultural production objects. They are analyzed dangerous for agriculture weather phenomena, and methods of their controlling.

**Soil Science with the bases of geology.** The course study geological processes that form the the Earth's surface and soil conditions, mineralogical composition of the soil and rocks, the main types of parent rocks, structure, composition, properties and patterns of geographical distribution of soils, ways of their management in fruit plantations, vineyards, berry crops and measures to restore soil fertility. The purpose of discipline is to evaluate the suitability of garden soil, which lays the foundation for the successful modern gardening soil properties because neglect can occur many years. The study of soil fertility and appraisal in relation to fruit trees is important because technology's impact on the soil in gardening is much more than in agriculture.

**Agricultural pharmacology.** Contents of subject involves the study of pesticides, their production and toxicological-hygienic characteristics, of modern classifications of pesticide, regulations their application.

**Entomology.** The course deals with Introduction to entomology and insect-pest management, including morphology, life processes, ecology and biology of key agricultural pests. Students are provides with knowledge of tactics of population suppression, and ecological backlash and level of entomophagous efficacy.

**Phytopathology.** Plant pathology studies phytopathology, reasons of their appearance features in development, symtomatology pathologies, species composition, morphology and bioecology of agents plant against pathogens, methods and systems of immunity, protection. On the basis of knowledges of phytopathology methods should be able determine of symptoms disease to carry out identify of pathogens and diagnose of diseases. On explicit data its need to conduct phytopathology monitoring as a results which it is differentiated to realize the prophylactic and therapeutic measures of control plant disease.

**Basics of scientific research.** Lectures on discipline covers the theoretical foundations of research and their application in practice, planning and research in horticulture, the use of statistical methods and scheduling of research using computer programs. Laboratory and practical course dedicated to the study of methods and algorithms statistical analysis of experimental data, variation, variance, correlation and regression analysis and so on.

**Standardization and quality management horticulture and viticulture.** The course includes the study of the following issues: the goals and objectives of standardization, standardization essence of the science, teaching the basics of standardization, the issue of quality of horticultural products, standardization of quality products and the methods of control, international standards. General information about domestic and foreign experience of produce quality management, certification and metrology software. The development of the current requirements for fruit and vegetable products to the planned production of competitive products. The development of effective actions of product quality management in the production of high-quality, environmentally friendly, organic and competitive products. The development of principles and procedures for certification of products for the domestic market and export. Features creation and implementation in production systems ISO 9000 with the following quality management system accreditation. While teaching discipline taken into account existing laws on standardization, certification and safety of produce.

**Farm equipment and instruments.** The general issue of mechanization processes in crop, destination, general structure and workflow of machines for growing and harvesting crops and general issues mashynovykorystannya in crop. Study ways of regulating the working process and setting up machines and methods to control



performance of the machines in a production environment. Consolidation of theoretical knowledge occurs during training practice.

**Agriculture.** Discipline is one of the basic training of professionals in this specialty. As a result of the discipline the student should know the role of agriculture for horticulture and viticulture industry, possess the scientific principles and laws of Agriculture in accordance with this specialty.

**Mushroom's growing.** The biological capacities of cultivation's mushrooms, their requirements for the growing's terms are learnt. Especially for the medical capacities of hat's mushrooms. Constructions capacities of champignons and principles their equipments to the tools for the providing optimal micro climate's parameters are showed. The technology's details of receiving to the mycelium, making up of substrates and base to the mushrooms the main cultivation mushrooms (*Agaricus bisporus*, *Pleurotus ostreatus*, *Lentinula edodes* etc.) are introduced. As a technologies for the growing of few common mushrooms groups.

**Agrochemical chemistry (agrochemistry).** The goal of the studding of the theoretical materials and laboratory classes are mastering for bachelor in horticulture and viniculture in theoretical knowledge and practical skills into identify and resolve tasks chemization such as basic of the vegetable, horticulture and viniculture, estimation of the mineral and organic fertilizers, chemical ameliorants and special agrochemical peels, their effect on environment and quality of the products. And students take practical skills in fertilization of the vegetable and fruit crops and berries, schemes for fertilizers application of the minarel and organic fertilizers, etc.

**Fruit growing.** The main objective of discipline is to equip future professionals with the skills and knowledge of production technologies of fruits and berries, which are the basis of nutrition and raw materials to processing. In the process of teaching highlights the status and prospects of fruit; value anatomical and morphological and biological features of fruit and berry crops. We consider the physiology of stability garden plants to environmental factors and patterns of fruiting. Detailed analysis of modern cultivation technology yields high eco-friendly fruits and berries in different soil and climatic zones. Much attention is given to ways and means of improving the quality of products and measures for its maintenance, as well as ways to reduce labor costs and capital goods during cultivation.

**Vegetable growing.** This discipline is devoted to the study of biological foundations of vegetables, the features of the preparation and fertilization of soil, plant propagation, the seedlings' planting into the open ground, the common measures for plants' caring, the harvest and cultivation technology of the vegetable growing technologies in the open soil. Each theme highlights the economic importance; the cultivation technology of high-quality commodity of vegetable crops and melons; the management system of plant protection from weeds, pests and diseases in order to implement the latest technologies for the receiving the high-quality commodity, environmentally acceptable vegetable production; harvesting and post harvest handling. The morphological characteristics of vegetables and melons, their biological characteristics, the requirements for the growing conditions and the current state varietal diversity are studied in the laboratory practical classes. A study of the species composition of the seeds and their germination. The ways of propagation, the calculations in seedlings' needs of different vegetable crops are also considered. The methods of control and the regulation of temperature, lighting regime, carbon dioxide, humidity and nutrient regime are in this theme. The estimation in seeds' needs of various vegetables, the scheme of sowing and feeding area are considered. The organization of vegetable crop rotation.

**Plant growing.** The course forms the future specialists for growing grain, potato, sugar beet, sunflower seeds and other plant products. The course is based on knowledge of the field crops, especially their growth and development, requirements for

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environmental factors, the modern high yields technologies for growing the quality products at the lowest cost of labour and capital. As a result of the discipline studying the student should to know: state and prospects of plant growing, morphological and biological characteristics of field crops, modern technologies of cultivation, including intensive ways and means quality improving of agricultural products, reducing of means and labour costs for crops growing.

**Introduction to Specialty.** Deals with general fundamental questions of horticultural science in modern conditions and in the future, shows its connection with other sciences. Focus on the most important problems of the agricultural sector of Ukraine, and in particular the problems of fruit growing and viticulture. Brief highlights the role of scientists in the development of horticulture and viticulture. The emphasis is on basic agronomic positions, higher education, organization and basic forms of educational process in Ukraine, public and scientific work of students while studying in the specialty " horticulture and viticulture."

**Selection of vegetable, fruit and berry crops.** Discipline examines the theoretical and methodological issues of creation of varieties, methods of breeding and selection, types of crosses, methods for source material selection major areas of vegetable crops in view of the structure and characteristics of the flower blooming and pollination. The basis of the study course is breeding advancements in breeding cabbage, carrots, cucumbers, tomatoes and other crops. The purpose of discipline is to develop the students' knowledge of the history of genetics and breeding of horticultural crops and features in the selection process of pome, stone fruit and berry species. The main objectives are: to study the theoretical foundations and methods to create new and improve existing varieties; search of donors and sources of valuable economic and biological features of the existing gene pool of plant resources; involvement in the selection process wild forms and varieties of folk selection that are adapted to adverse environmental conditions change areas of cultivation. As a result of the program, students should know: history, methods of selection, , organization of selection process and variety studies and also be able to: make breeding program plans to carry out the selection of parental pairs for crossing, hybridization, evaluation of breeding material and so on.

**Technology of storage and processing of of fruits and vegetables.** The course is studying the final course for the educational level "Bachelor" when students have learned technology of cultivation of vegetable, fruit and berry crops. The course studies the principles of scientific storage of fruits and vegetables, especially as their storage and processing facilities, the impact factors of cultivation and post harvest handling their quality and keeping quality, suitability for storage forecasting, and various kinds processing. The program provides study the discipline schemes post harvest handling crop grown fruits and vegetables, especially its transport depending on type of transport. will study the technological characteristics temporary, universal and specialized storages, especially the placement of their fruits and vegetables for short-term or long-term storage. Will be considered effective regimes and methods storage different kinds of fruits and vegetables, the ability to establish and maintain optimum parameters in storage regime types. Peculiarities storage of fruits, vegetables and berries in the conditions regulated and modified atmosphere. Ways to create a modified atmosphere and means to maintain optimal gas in storage environment. Assessment of quality of fruits and vegetables after storage, to prevent losses in quantity and quality. A separate module provides the study of modern technologies of fruit and vegetables. Requirements for study materials intended for processing. Students consider microbiological, physical, chemical preservation methods. Features making fermented, dried and frozen products from fruits and vegetables, natural canned vegetables, fruit and berry compote, getting juices, purees, jams and more. Basic processing potato. Assessment of quality of canned fruits and vegetables. Accounting, quality control and storage of finished products.

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**Agrochemical service for vegetable growing, horticulture and viticulture.** The goal of the studying of the theoretical materials and laboratory classes are mastering for bachelor in horticulture and viticulture in theoretical knowledge and practical skills into basic of the agrochemical supply and agrochemical service agribusiness, monitoring and application of the chemicals in technologies processes of the vegetable, horticulture and viticulture, save and increasing of soil fertility according to environmental conditions, agrochemicals market, production systems specificity, supplying of the producers in the field of vegetable, horticulture and viticulture by resources and service of the chemicals.

**Vegetable growing in Protected Cultivated.** The technology of vegetable crops in different types of greenhouse's constructions are studied. As a variety's choice for the specific, microclimate's terms and its parameters in winter and plastic greenhouses. For example a nutrient solutions, plants forming and another agro technical methods in such terms. Especially important for the greenhouse's nutrient soilless, substrates to prepare to the nutrient solutions for the hydroponic methods dependent to the cultures and their growth's phases.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines "History of Ukrainian Statehood", "Ethnocultural", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language (English, German, French, Spanish)", "Physical Training", "Labour and Life Safety", "Legal Personal Culture" see Section 2.1.

### **2.2. Disciplines offered by students**

#### **2.2.1. Specialization "Fruit and Vegetable Science and Viticulture"**

**Herbology.** The problem weeds of orchards and berry fields will be relevant in horticulture and viticulture, so this discipline is one of the basic training to professionals of this branch. In the lecture course covers the scientific basis herbology, characteristics and place of segetal plants in modern orchards and berry fields and measures and systems to control the presence of weeds in perennial plantations for various technologies of cultivation. Laboratory course devoted to the study of weeds and practical skills for monitoring and assessment of weeds and their impact on growth and development perennial plantations. Future specialists can implement acquired knowledge by developing biologically and economically effective and environmentally acceptable system control weeds in orchards and vineyards, features gardening and viticulture conditions for organic farming. The student must know the indicators of soil fertility, providing high efficiency of fruit and berry crops, vines, vegetables and melons, etc., regulation and ways of reproduction of soil fertility. Know the role and tasks of cultivation in the laying of gardens and vineyards, mechanical caring for orchards, vineyards and berry. Possess measures mechanical protection of fruit, berry and vegetable crops from pests. To know the scientific basis of special crop rotation; place vegetables, melons and berries in rotation; agronomic requirements for planting vegetables and melons and measures for their care; the features of horticultural erosion in hazardous areas and soils contaminated with radionuclides and heavy metals; features gardening and viticulture conditions for organic farming.

**Commodity fruits and vegetables.** The discipline that studies the commodity characteristics of different types of fruits and vegetables and processed products, methods of preparation for the implementation of the parties of fruits and vegetables rules of accompanying documents and assessment methodology marketable quality.

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**Ampelography.** He studies the types and grape varieties, patterns of morphological variability, agrobiological and economic and technological properties by the environment and humans. Ampelography divided into general and partial. Total ampelography studying the taxonomy, classification and origin of the grapes. Partial studies ampelography some varieties gives them a botanical description, agrobiological and economic and technological characteristics and methods of determination. Ampelography helps determine varietal grapes fund, issues zoning and specialization varietal wine, grape promoting culture in new regions, selection and use grades as a starting material in the selection process, the maintenance of varietal farming.

**Agricultural microbiology.** The subject give knowledge about morphology, structure, classification, genetic, physiology and ecology of basis groups of microorganisms, their role in utilization of complex plant and animal remains, breaking them down into simpler chemical forms which are returned to the soil. The importance of microorganisms in human practice activity, microorganisms interaction between themselves and high plants, give knowledge about microbiological means of protection against diseases and pests of plant, perspective means of plant protection for graving harvest agricultural crops.

**Biotechnology.** Discipline focuses on cultivation of isolated cells and tissues, callus and suspension cultures, microclonal propagation of plants and their recovery from viral infections, morphogenesis and regeneration of plants in vitro (organogenesis, embryogenesis, rhizogenesis), culture of isolated protoplasts as a basic of cell engineering, selection of plants in vitro, cell and genetic engineering, methods for transgenic plants obtaining.

**Virology.** Main purpose of study course is acquisition a theoretical foundations and formation of practical skills of students who will investigate plant viruses and methods of struggle of viral spread. The practical part of course includes study modern methods which can be used by a work with plant viruses, especially for viral diagnostic and identification by means of biological testing, electron microscopy and immunoassay methods also for getting a unviral landing material by microcline method of reproduction. Knowledge of above methods is necessary for training of high educational specialists in agriculture.

**Potato.** Subject program involves the study of technology growing stable yields of potatoes in different soil-climatic zones with high lezhkozdatnistyu, product quality, technological and culinary properties. The issue of development and quality control of potatoes on the way from the field to the consumer, the requirements of technical standards for the quality of potatoes for various purposes, resource assortment of potatoes.

**Ornamental horticulture.** Discipline creates competence of the students in biology woody and herbaceous ornamentals various uses. Introduces the range and their methods of reproduction (seeds, rhizomes, bulbs, jigging, cuttings, root shoots, vaccinations, etc.). Program course "Ornamental Horticulture" supposed to study the history of ornamental horticulture, development of its main styles, classification ornamental plants. Attention is focused on the basic elements (lawns, flower beds, ridges, arabesque, alleys, linear plantations boksety, hedges, borders, pergolas, tapeworm, curtains, etc.). Main types of systems and greenery. We consider the technology of the decorative planting and care.

**Land reclamation.** The program of the course aims at familiarizing students with different types of reclamation activity as a set of measures for the comprehensive improvement of adverse environmental conditions. The main focus in the course of discipline study is given to the opportunities and technological characteristics of the innovations in land reclamation, namely micro-irrigation, fertigation, etc. These elements of agricultural technology are an important component of obtaining high-quality fruits and vegetables, both in open and protected ground. Learning the discipline enables the students to gain a professional competence in the correct adaptation of modern

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reclamation measures in the scientifically grounded system of horticulture, vegetable growing and viticulture.

**Nursery.** The program provides introduction to the history, current state and prospects nursery in Ukraine and abroad, studying biological basis propagation of fruit and berry plants by growing basic planting material. The program includes fruit nursery structure and organization of its territory, requirements for soil and climatic conditions, basic principles of calculation area offices. The basis of the program is the study of rootstocks of fruit, berry and nut crops, the main technologies of the grafted and rooted planting material, knowledge of modern standards and rootstock seedlings, planting material storage technologies.

**Seeds of vegetable crops.** The course examines issues of organization and system of seed production of vegetable crops in Ukraine, the theoretical foundations of seed and seed-quality control features growing major vegetable seeds.

**Olegrafia.** In it's given origin, history of cultivating and inner species categorizations of (subspecies', varieties, and varieties type, varieties) vegetable and melons-field crops for group. The variety is the main object on which is directed cultivation technology. It was showed the analysis of the varieties resources' condition in Ukraine and their role in the production of agricultural output. Deeply motivated selection varieties and hybrids for determined of growing technology of vegetable crops and different directions of vegetable growing. On practically-laboratory lessons are studied certain varieties and hybrids of the vegetable and melons-field crops' of their different types of sort. They are study systems of approbations and identification sign, particularities of the expert operation of varieties on VOS - a test of vegetable and melons varieties.

**Pomology.** The course studies the economic and biological features of fruit and berry crops and their variability depending on natural and agro-climatic conditions, varieties origin and requirements to their farming. Consider the question of maintaining existing varieties and their further improvement through clonal selection, introduction, zoning varieties from industrial and biological study of a particular region. Learning the basics of pomology will help future gardeners intelligently navigate the vast diversity of varieties of fruit and berry plants correctly chosen the best for mass propagation in nurseries and cultivation of industrial and amateur stands in a particular sector or climatic region. It teaches the basics of determining potential varieties for use in breeding as donors or sources of signs.

**Greenhouses.** The scientific and innovations aspects of developing of modern greenhouses, their modernizations and reconstructions methods of climate's variations and connecting of micro climate's capacity's are learnt. This discipline introduces the cycle of technical engineering greenhouse's systems and principles of greenhouses equipment's jobs.

**Beekeeping.** The discipline studies required to get the students knowledge on plants honey and pollination of crops by bees. Expected learning products plants collected bees for their power and provide a marketable product. Served as melliferous plants characteristic of plants, their classification, use to create tricks in different periods of the season. Reveals the role of bees as pollinators of plants, equipment and organization pollination of various crops, effectiveness in increasing yields of fruit and seeds.



**2.3. 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](mailto:zr_eco_bio_dep@i.ua)  
Location: Building № 4, Room 42

The faculty organizes and coordinates Bachelor training in the following specialties:

***202 Plant Protection and Plant Quarantine***

Graduating departments:

Department of Entomology named after Prof. M.P. Diadechko  
Tel.: (044) 527-89-78, E-mail: [entomologia@yandex.ua](mailto:entomologia@yandex.ua)  
Head of the department – PhD in Agricultural Sciences, Associate professor, Y.O. Likar

Department of Phytopathology named after Academician V.F. Peresyupkin  
Tel.: (044) 527-82-11, E-mail: [phytopath\\_Peresyupkin@ukr.net](mailto:phytopath_Peresyupkin@ukr.net)  
Head of the department – Doctor of Biological Sciences, Professor L. O. Kryuchkova

Department of Integrated Protection and Plant Quarantine  
Tel.: 527-82-12, E-mail: [kaf.izkr@yandex.ru](mailto:kaf.izkr@yandex.ru)  
Head of the department – PhD in Biological Sciences, Associate professor, A. G. Babych

***162 Biotechnology and Bioengineering***

Graduating department:

Department of Ecobiotechnologies and Biodiversity  
Tel.: (044) 527-85-17, E-mail: [eko\\_bio@nubip.edu.ua](mailto:eko_bio@nubip.edu.ua)  
Head of the Department – Doctor of Agricultural Sciences M. V. Patyka

***101 Ecology***

Graduating department:

Department of Agricultural Sphere Ecology and Ecological Control  
Tel.: (044) 527-81-95, E-mail: [eco\\_dep@mail.ru](mailto:eco_dep@mail.ru)  
Head of the department – Doctor of Agricultural Sciences, Professor V. M. Chaika



**Bachelor**  
**In specialty "PLANT PROTECTION AND PLANT QUARANTINE"**  
**field of knowledge " Agricultural science and food"**

Form of Training:	Licensed number of persons:
– Full-time	75
– Part-time	50
Duration of Training	4 years
Credits	240 ECTS
Language of Teaching	Ukrainian, English
Qualification	Bachelor of Plant Protection Inspector

**Concept of training**

Experts in Plant Protection develop systems of protective measures against harmful organisms. They have to know the methods of diseases diagnostics, identification of pathogens, determination the species composition of phytophagous, entomophagous and weeds, know their biology and ecology, explore the economic threshold of harmfulness and develop forecasts and the occurrence of pests and diseases.

**Practical training**

Teaching and research farms of NULES of Ukraine: PC of NULES "Agronomic Research Station", "Velykosnytynske Education and Research Farm named after O. Muzychenko", Education and Research Farm of NULES of Ukraine "Fruit and Vegetable Garden".

**Proposed Topics for Bachelor theses**

1. Biological features and harmful herbivorous insect of agricultural crops.
2. Phenology of entomopathogenic nematodes – parasitic pests – in growing ornamental plants.
3. Development features of root rot of crops.
4. Integrated action of after stair herbicides on agricultural crops.
5. Species composition and hazard of similar to mouse rodents on agricultural crops and their products.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog

**Employment of Graduates**

The Classifier of occupations in Ukraine DK 003-95 (2006) for graduate level "Bachelor" set qualification "Inspector Plant Protection" (code 3212 CE). Graduates may find employment specialists in pest control services, research institutions, control and laboratory toxicological and biological plant protection in farms of different ownership or to continue studies in master.

**Bachelor`s Program and Curriculum in Specialty**  
**«Plant Protection and Plant Quarantine»**

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Botany	1	90	3
2	Higher mathematics (professional orientation)	1	90	3
3	Fundamentals of computer science	2	90	3
4	General microbiology	3	90	3
5	Biophysics	1	90	3
6	Inorganic chemistry	1	90	3
7	Analytical chemistry	2	90	3
8	Organic chemistry	2	90	3
9	Physical and colloidal chemistry	3	90	3
10	Plants Physiology with the bases of chemistry	4	90	3
11	Ecology	3	90	3
12	Genetics	2	60	2
13	Farming	4	90	3
14	Soil science with the bases of geology	3	90	3
15	Agricultural chemistry	5	90	3
16	Crop production with basics of fodder production	5	120	4
17	Selection and seed farming	6	60	2
18	Economics and business management	7	120	4
19	Fundamentals of scientific research in plant protection	4	90	3
20	Mechanization, electrification and automation of agricultural production	3	120	4
21	Technology of storage and processing of crop production products	7	90	3
22	Vegetable growing	4	90	3
23	Fruit growing	4	90	3
24	General entomology	5-6	150	5
25	General plant pathology	5-6	150	5
26	General mycology	3-4	150	5
27	Quarantine of plants	7-8	120	4
28	Rodentology	7	90	3
29	Agricultural entomology	7-8	180	6
30	Agricultural plant pathology	7-8	180	6
31	Plant disease prognosis	5	90	3
32	Pest monitoring	6	90	3
33	Herbology.	3-4	90	3
34	Plant immunity.	7	90	3
35	Chemical protection with the bases of toxicology	7	150	5
36	“Agricultural Meteorology	5	90	3
Total for standard part			3720	124
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukraine Statehood	1	90	3
2	Etnocultural	2	90	3
3	Philosophy	2	120	4
4	Ukrainian for professional purposes	2	90	3
5	Foreign language (English, German, French, Spanish)	1-2	150	5
6	Physical training	1-4	180	6
7	Labour and life safety	3	90	3
8	Legal culture of personality	6	90	3
9	Radiobiology	2	120	4
10	Fundamentals of biotechnology in plant protection	4	90	3
11	Biological protecting of plants from wreckers	8	120	4

12	Standardization and quality management of plant products	5	120	4
13	Protecting of field-protection forest bar from pests	8	120	4
14	Diseases of forest field stands	8	120	4
15	Protection of ornamental and flower plants from pests	8	90	3
16	Diseases of decorative and floral plants	8	90	3
17	Mites and Nematodes,	6	120	4
<b>Total (Disciplines offered by University)</b>			<b>1890</b>	<b>63</b>
<b>2.2. Disciplines offered by students</b>				
1	Latin	2	120	4
2	Theoretical foundations biomethod	5	120	3
3	Agricultural zoology	6	180	6
4	Beekeeping	6	180	6
5	Diseases of medicinal plants	8	120	4
6	Diseases of edible mushrooms.	8	120	4
7	Protection edible mushrooms from pests	8	120	4
<b>Total (Disciplines offered by students)</b>			<b>960</b>	<b>32</b>
<b>Total for elective part</b>			<b>2730</b>	<b>95</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training course	5-8	870	29
2	Academic Practice	2,4,6	360	12
3	Production Practice	6	150	5
<b>Bachelor Thesis writing (Graduate thesis or Project)</b>			60	2
<b>State Attestation</b>			60	2
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Botany.** Structure of cell, tissue, vegetative and generative organs. Difference of plant's world. Features of different groups of lowest and high plants. Genesis of plants, its role in forestry. Morphology. Productivity of wood biogenesis and actual questions of its rational use and protection.

**Further Mathematics.** Elements of analytical geometry. Linear algebra. Math analysis. Differential calculation of the one of current values. Investigations of functions by methods of differential changes. Indefinite and definite integral. Differential equations. Rows.

**Fundamentals of Computer Science.** Calculation technique and information in Forestry. Program micro calculators (MC). Work in the automatic regime and program on MC. Structure, database and software of electronic machines. Personal computers. Packs of programs and their practical using. Program languages. Program of tasks. Tasks solving by personal computer.

**General Microbiology.** Microorganisms. Exchange of nutrition's. Microbial and soil fertilizing substances. Microbiology of water, air, forage. Morphology and chemical composition of virus. Virus diseases and their control.

**Biophysics.** Mechanics, kinematics and dynamic of point and hard body. Molecular physics and thermodynamic. Electrostatics. Electric current and electromagnetism. Waves. Optics. Elements of quantum mechanics. Structure of nuclear. Radiation. Radiation influence on biological objects.

**Inorganic chemistry.** is the study of the synthesis and behavior of inorganic and organometallic compounds.

**Analytical Chemistry.** Subject includes the theoretical foundations of modern analytical chemistry. In Analytic Chemistry it is shown the foundations of Qualitative and Quantitative Analyses of above mentioned compounds of bio-elements and their practical use in agricultural production.

**Organic Chemistry.** Structure, method of extraction, physical and chemical properties, as well as practical use of the main classes of organic substances such as carbohydrates, spirits, aldehydes, ketones, amines, acids, heterocyclic substances. Studying of properties of amino acids, carbohydrates, lipids, nuclear acids and proteins.

**Physical and Colloidal Chemistry.** Physical and chemical properties of compounds and solutions. Structure, functions and metabolism of proteins, carbohydrates, amino acids, nuclear acids, vitamins, ferments, macro and microelements, which form the basis of tissue composition. Biochemical processes which form the basis of functional activity of certain organism organs and systems.

**Plants Physiology with the bases of chemistry.** Physiology of plant cell. Water cycle in plants. Photosynthesis. Breath. Mineral nutrition. Synthesis and transformation of organic matters. Growth of plants. Fruit and seeds ripening. Adaptability and suitability of plants.

**Ecology.** Ecology science. Definition. Structure. Definition of biosphere. Ecosystem and biogeocoenosis. Circling of matter. Ecological pyramids. Notion and classification of pollution. Entropy. Populations. Contamination of environment: acid rains, greenhouse effect, influence forest ecosystems. Nature protection by reserving.

**Genetics.** Studies key laws of heredity and variability of organisms, explains principles of storage, transfer and implementation of genetic information including cytological and molecular fundamentals of heredity, regularities of inheritance of sex, properties (drawbacks, diseases) linked inheritance, basics of genetic engineering, populations and pure lines, basics of immunogenetics.

**Farming.** Soil; fertility and its verifications, soil reproduction, scientifically basis of agriculture and its practical usage, general concepts of agriculture and its practical usage, theoretical principles of crop rotation and its practical usage in the different soil-climatic zones of Ukraine and the land and its protection of soil erosion, agricultural system and its local peculiarities.

**Soil Science with the Bases of Geology.** Soil science is science, which studies genesis, development, structure, composition, properties and laws of geographical distribution of soils, ways of their rational use and restoration of fertility.

**Agricultural chemistry** includes theoretical and practical problems of crops nutrition and fertilization. They are considered studies on chemical melioration, organic and mineral fertilizers characteristics, and features of their application for different crops. The issues of nutrients balance, fertilization system, joint application of fertilizers and plant protectors are discussed. The attention paid to agrieological aspect of fertilization.

**Crop production with basics of fodder production** studied modern intensive technologies of food, industrial and fodder crops cultivation. Course based on knowledge about field crops, features of their growth and development, requirements to the environmental factors, up to date tools and technologies of agricultural crops cultivation which provides obtaining of high yields with appropriate quality with minimal labor and finance expenses. Course forms appropriate professional ideology, provides with system of theoretical and applied knowledge's and skills to implement it in practice.

**Selection and Seed Farming.** Discipline is devoted to studying of modern situation in selection and to the last advances in this sphere, agricultural demands to production of species and their hybrids, tasks and focus area of selective work, technologies of selection process, modern methods of creation of new kinds and hybrids of field crops.

**Economics and business management.** Formation of knowledge about economic relations and social form of production, efficient use of scarce productive resources and ways to ensure public needs in different socio-economic formations.

**Fundamentals of scientific research in plant protection.** The lecture course on the subject covers the theoretical foundations of scientific research and their application in practice, planning and research in agronomy, the application of statistical methods in agronomic research and planning of scientific research using computer applications. Laboratory - practical course focuses on the study of methods and algorithms for statistical analysis of experimental data: variation, variance, correlation, regression, Pearson analysis, probit analysis.

**Mechanization, electrification and automation of agricultural production.** The purpose of studying discipline is to provide students with theoretical knowledge and practical skills in the field of mechanization, electrification and automation of technological processes of agricultural production. Academic discipline is complex and consists of coherent and technologically related sections: tractors and automobiles, agricultural vehicles; electrification and automation of technological processes of agricultural production.

**Technology of storage and processing of crop production products.** It is a special discipline that studies technology of postharvest handling of cereals, legumes, grouts crop, oilseeds, fruit and vegetable crops, sugar beets, hop, tobacco, methods of short and long-term storage, bases of processing. This is final discipline after learning technologies of growing cereals, legumes, grouts crop, industrial crops, vegetables, fruits and berries.

**Vegetable growing.** The lecture course of the discipline highlights issues of biological bases of vegetables crops, peculiarities of soil preparation and fertilization, plant propagation, seedlings growing, general measures of plant protection, harvesting and the principles of vegetables crops rotation. When considering vegetable growing in the open, technology of growing cabbage, carrot, table beet, onion, tomato, eggplant, cucumber, lettuce, dill, sorrel, horseradish is shown. At the laboratory-practical classes morphological characteristic of vegetable crops and their classification are studied. Study of species composition of seeds, their germination is carried out. Methods of propagation, accounting of seedlings quantity for different crops both field and greenhouse have been studied.

**Fruit growing.** The program provides studying fruit and berries, their importance, morphological and biological peculiarities, methods of propagation, rootstocks, the structure of the nursery, technologies of growing plantings, establishment of orchards, systems of soil management and treatment in the orchards, fertilization and irrigation of plantings, fruit trees forming and pruning and other operations in orchards, preparation and technologies of harvesting crops, biological peculiarities and technologies of small fruit crops growing.

**General entomology,** as a Theoretical and a professional discipline enables the future specialists to get acquainted with the peculiar features of external structure of insect, the functioning of living organs and their systems, life cycles, multiformity of species and intraspecific forma and their interaction among themselves and the environment surrounding.

**General plant pathology.** Program foresees acquaintance of students with science on plant diseases and factors, which cause diseases, influence of ecological conditions on its development. Considerable attention is paid to disease

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diagnosis, pathogen ecology, its classification, morphological and biological peculiarities and methods of plant protection from diseases.

**General Mycology.** Course of “General Mycology” makes students to get acquainted with morphological and biological peculiarities and spreading of fungi, its role and meaning in human life and agriculture.

**Quarantine of plants.** Modern knowledge of fito-sanitary legislation, order and methods of fito-sanitary examination, biology of quarantine and other harmful organisms, absent, on territory of the country.

**Rodentology. (Harmful rodents and lagomorphs)** includes the study of a large number of pests, their systematic position, anatomical, morphological, physiological, and biological and ecological characteristics related to the two groups of animals

**Agricultural entomology.** The course deals with Introduction to entomology and insect-pest management, including morphology, life processes, ecology and biology of key agricultural pests. Students are provided with knowledge of tactics of population suppression, and ecological backlash and level of entomophagous efficacy.

**Agricultural Plant Pathology** studies the crop diseases and works out the system of protection measures from one or group of diseases.

**Plant disease prognosis** (Prognosis of crop disease development is a part of integrated plant protection system and basis for planning and timely usage of all protection measures).

**Pest monitoring** course is focused at methods and methodologies of pests sampling and collection in agricultural fields at modern crop rotation and technologies of production. The apart of the courses is phenology and mapping of insect communities structure in agricultural biocoenosis.

**Herbology.** Is one of the basic disciplines of training specialist in plant protection. The lecture course covers scientific basic herbology, characteristics and location of sagittal vegetation in modern agrophytocoenoses and its negative impact on crops. The course measures with weed-infested control systems in modern farming systems. Laboratory course is devoted to weed studying and acquisition of practical skills development systems of weed control in field crops.

**Plant immunity.** Plant immunity studies crop resistance to principal factors, which define its immunity to harmful organisms and includes some working steps of selection of new plant varieties and hybrids resistant to diseases and pests.

**Chemical protection with the bases of toxicology.** The educational discipline studies main methods of experiment organization, main principles and level of its planning, demands to researches in Plant Protection, statistical analysis of results obtained.

**Agricultural Meteorology** Subject program provides for main issues of agricultural meteorology, influence of weather and climate changes on agricultural production objects. They are analyzed dangerous for agriculture weather phenomena, and methods of their controlling.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines “History of Ukraine Statehood”, “Ethnocultural”, “Philosophy”, “Ukrainian for Professional Purposes”, “Foreign Language (English, German, French, Spanish)”, “Physical Training”, “Labour and Life Safety”, “Legal Personal Culture” see Section 2.1.

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**Radiobiology** The course considers the principles of agricultural radiobiology and radioecology; it introduces into the problems of biological impacts of ionizing irradiation, radionuclide migration in the environment and in the agricultural objects, the basic concepts of the radio ecological and dissymmetric monitoring; it presents the structure of the radiation control system, the methods of assessment and normalization of the doses and permissible levels of the radioactive contamination in accordance with the norms of radiation safety of Ukraine; it analyzes in details the countermeasures for reduction of the radio nuclides transfer into agricultural production and foodstuffs, as well as the ways for the ionizing irradiation application in the agricultural practice.

**Fundamentals of biotechnology in plant protection.** The course provides an opportunity to learn basic skills and techniques of plant culture in vitro, to obtain transgenic plants and plant resistant to herbicides, diseases, adverse environmental conditions.

**Biological protecting of plants from wreckers** study questions of application of different biological facilities are studied in protecting of plants from harmful organisms, including microbiological preparations, mass breedings of insects and pliers in biolaboratories, use BAS, and also combination of biological method, with other methods of defence of plants.

**Standardization and quality management of plant products.** The discipline provides students with knowledge of theoretical basis of standardization in Ukraine, basis of quality management, methods of plant product control, norms of plant product quality and basis of product certification.

**Protecting of field-protection forest bars from pests.** It is a section of scientific knowledge about the forest insects as of important part of forest agrobiocoenoses and adjusting of their quantity by modern measures and facilities with the purpose of increase of firmness and productivity of planting.

**Diseases of forest field stands.** The program involves the study of diseases of tree and shrub species, main pathogens, the conditions of its development and methods of protection from them. Study diagnostics, biological and morphological features of pathogens forest plantations, allow justifying measures limiting of their development.

**Protection of ornamental and flower plants from pests** involves learning the principles of phytodesign compositions with decorative and flowering plants in natural and anthrope-natural, landscape and cultural phytoncides and greenhouse, justify their role in natural regulatory mechanisms and cleaning environment from the adverse factors.

**Diseases of decorative and floral plants.** Educational discipline "Diseases of decorative and floral plants" acquires students with species composition agents of floral and decorative plant diseases; visual symptoms of display of floral and decorative plants diseases; bioecological features of pathogens; influence of environment conditions on the processes of development of floral and decorative plants diseases; modern methods and methods of protection from floral and decorative plants diseases.

**Mites and Nematodes** The content of the subject includes the study of the species composition, morphological and biological features of modern monitoring, hazard and environmentally safe measures to control the size of the main species of nematodes and mites.

## ***2.2. Disciplines offered by students***

**Latin.** The main objective of the course at the faculty of Plant Protection is to teach students of Latin terminology, operating in botany, plant pathology and zoology, open access to a free and conscious perception of biological

nomenclature, which is an essential element in the formation of high-grade specialist in agro-profile.

**Theoretical Foundations biometodu.** Probe diagnostic features of different groups of organisms used in biological plant protection, their relationship and role in reducing the number of malicious sites. The problems of application of various biological agents to protect plants from harmful organisms, including microbiological preparations mass breeding of insects and mites in biolaboratoriyah, use BAR, and a combination of biological method with other methods of plant protection.

**Agricultural zoology.** Studying of this course allows to get familiar with biological laws of development of living organisms, principles of animal systematic and evolution of. Attention is paid to modern taxonomy, species biodiversity, morphology of different animal types as well as life process and cycles, effect of environment and the role that pests and beneficial species play in ecosystems.

**Beekeeping.** Preparation of highly qualified specialists in the field of plant based on modern achievements of a number of special subjects. The introduction of modern technology in beekeeping cannot successfully take place without increasing the overall culture of Beekeeping Livestock. Get high productivity of bee colonies is only possible through the introduction of technological methods of keeping and breeding, which should be based on a high genetic potential, the optimal conditions for growth and development of bees, compliance with sanitary rules and regulations.

**Diseases of Medicinal Plants.** Discipline studies diseases of medicinal plants, pathological process, the main pathogens, its development conditions, and protection methods from them.

**Diseases of edible mushrooms.** Discipline studies diseases of cultivated mushrooms, peculiarities of its infection and pathological process, characterizes the main disease agents of edible mushrooms, conditions of its development and protection measures from them.

**Protection edible mushrooms from pests.** The discipline deals with biology of edible mushroom pests and methods of their control.

**Bachelor**  
**in specialty "BIOTECHNOLOGY AND BIOENGINEERING"**  
**field of knowledge "Chemical and Bioengineering"**

Form of Training:	Licensed number of persons:
- full-time study	100
- part-time	50
training period	3 years 10 months
Credits	240 ECTS
Language of training	Ukrainian, English
Qualifications of graduates	Bachelor, specialist of biotechnology

**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.

**Proposed Topics for Bachelor theses**

1. Getting crymophylactic lines rapeseed (*Brassica napus* L) in culture in vitro.
2. Biotechnological production bases and the use of entomophagous on maize crops.
3. Granulation of hop cones in the technology of industrial production of beer.
4. Obtaining virus-free material manor verbena hybrid by biotechnological method.
5. Phylogenetic features of Ukrainian isolate of potato virus X-based analysis of the CP gene fragment.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog

**Spheres of Bachelors employment**

Graduates work in the food, chemical and biotechnology industries, institutions and environmental health surveillance in control and analytical laboratories, centers of certification, commercial firms, research and design institutes and institutions of Ministry of Education, Academy of Sciences of Ukraine, core public administration, higher and secondary schools.

**Bachelor`s Program and Curriculum in Specialty**  
**«Biotechnology and Bioengineering»**

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Political Science	6	90	3
2	Higher Mathematics	1-2	210	7
3	Physics	1-2	210	7
4	General and Inorganic Chemistry	1-2	180	6
5	Organic Chemistry	3	180	6
6	Analytical Chemistry	3	180	6
7	Physical and Colloid Chemistry	4-5	210	7
8	Biochemistry	5	210	7
9	Engineering and Computer Graphics	1-2	90	3
10	Computational Mathematics and Programming	1-2	90	3
11	Ecology	2	60	2
12	Cell biology	3-4	150	5
13	General Microbiology and Virology	2-3	240	8
14	General Biotechnology	1	240	8
15	Genetics	2-3	240	8
16	Biotechnological processes and equipment manufacturing	4,5	360	12
17	Electrical and electronics base	4	120	4
18	Automation biotech industries	7	120	4
19	Regulatory support biotech industries	3	150	5
20	Fundamentals of designing	6	150	5
21	Economics and Organization biotech industries	8	120	4
Total for standard part			3600	120
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukraine Statehood	2	90	3
2	Etnocultural	1	90	3
3	Philosophy	4	120	4
4	Ukrainian for professional purposes	1	120	4
5	Foreign language (English, German, French, Spanish)	1-4	150	5
6	Physical training	1-5	120	4
7	Labour and life safety	5-6	120	4
8	Legal culture of personality	4	90	3
9	Instrumental methods of analysis	6	90	3
10	Biology (Zoology)	4	60	2
11	Computer technology and programming fundamentals	8	90	3
12	Radiobiology and radioecology	5-6	90	3
13	Basics of biodiversity	4	90	3
14	Proteomics and genomics viruses	5	90	3
15	Biosafety (the use of biotechnology)	5	90	3
16	Plant physiology	6	90	3
17	Industrial biotechnology	6	150	5
18	Applied ecology	6	90	3
19	Bioengineering	7	90	3
20	Introduction to the profession	7	90	3
21	Immunogenetics	7	60	2
22	Molecular biothechnology	8	120	4
23	Technology of microbial synthesis of drugs	7	90	3
24	Technology of production of microbial products for agriculture	5	90	3
25	Ecological biotechnology	7	120	4
Total (Disciplines offered by University)			2490	83

<b>2.2. Disciplines offered by students</b>				
<b>2.2.1. Specialization "Environmental biotechnology"</b>				
1	Environmental toxicology	7	120	4
2	Energetical biotechnology	7	120	4
3	Technologies of bioproduction	8	120	4
4	Fundamentals of plant biotechnology	7	120	4
5	Bioconversion of waste	7	120	4
<b>Total for Specialization</b>			<b>600</b>	<b>20</b>
<b>2.2.2. Specialization "Agricultural biotechnology"</b>				
1	Environmental security in agriculture	7	120	4
2	GIIT and environmental display	7	120	4
3	Agricultural biotechnology	8	120	4
4	Biomethods of plant protection	8	120	4
5	Biotechnological processes of agritechnologies	7	120	4
<b>Total for Specialization</b>			<b>600</b>	<b>20</b>
<b>Total (Disciplines offered by students)</b>			<b>600</b>	<b>20</b>
<b>Total for elective part</b>			<b>3090</b>	<b>103</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training course	5-8	870	29
2	Academic Practice	2,4,6	300	10
3	Production Practice	6	60	2
<b>Bachelor Thesis writing (Graduate thesis or Project)</b>			<b>60</b>	<b>2</b>
<b>State Attestation</b>			<b>60</b>	<b>2</b>
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Politics.** Contents of discipline involves the examination of distinct political sphere of society. Understanding the purpose, structure and functions of politics and power that allows you to objective knowledge and practical skills of political activity.

**Higher mathematics.** The examples of basic concepts and methods of discipline to demonstrate the laws of nature, the essence of the scientific approach, the specificity of the subject and its role in science and technology.

**Physics.** Purpose of the discipline formation in physical science students thinking, in particular, a proper understanding of the limits of the use of different physical concepts, laws, theories and skills to assess the likelihood of outcomes.

**General and inorganic chemistry.** The aim of the course of General and Inorganic Chemistry is to provide knowledge about the properties, methods of preparation and application of chemical elements and their compounds, skills performance chemical experiment.

**Organic Chemistry.** Mastering the basic concepts of organic chemistry, the study of the synthesis and analysis of organic substances, processes of purification, separation and identification of mixtures tification, strengthening skills in the chemical laboratory

**Analytical chemistry.** Discipline examines the theoretical and practical issues of qualitative and quantitative chemical analysis. Specifically discusses the basic requirements for chemicals, reagents and analytical reactions, the concept of separation methods and concentration of cations, anions substances. Methods acid-base titration.

**Physical and colloid chemistry.** Properties and structure of substances based on their chemical composition, structure and living conditions, the study of chemical reactions and other forms of interaction between particles or chemicals depending on their composition, structure and terms of the processes, study, interpret and determine ways to apply the basic laws of physical chemistry, knowledge of the laws of phenomena that occur at the boundaries of the phases and their use for electrochemical and catalytic processes.

**Biochemistry.** The study of the chemical composition, structure, transformation of matter and energy that occur in living organisms, particularly plants. Obtaining knowledge on the subject will allow students to determine the flow patterns and the relationship between different metabolic pathways, the principles of regulation and topography, as in the cells, the body as a whole. Establishing patterns of metabolic major classes of organic compounds – carbohydrates, proteins, fats, vitamins, etc., allows you to create appropriate conditions for crops that provide a maximum number of the substance.

**Engineering and Computer Graphics.** General engineering training course, the subject of which is the construction and reading of drawings, sketches, technical drawings and diagrams. Study courses allow students to read blueprints, design parts of drawings for various purposes, to know and to use state standards in project documents, maintain project documentation.

**Numerical analysis and programming.** Studying the structure of computer hardware, software for calculation methods on a personal computer, the rules of working with text blocks to design computational algorithms of calculations using spreadsheet and mathematical processors, basic algorithms, programming, elements of Computational Mathematics and Informatics.

**Ecology.** Examines patterns of interaction between society and nature, the main environmental issues that arise in today's industrial production, the impact of the changed environment on humans, environmental protection, restoration and sustainable use of natural resources, environmental quality management based on modern advances in science, engineering and technology to protect environment. **Cell biology.** The structural organization of the cells of living organisms, evolution of living organisms on the planet, research methods, and concepts of cellular signals apoptosis are studied.

**General microbiology and virology.** The course provides knowledge and current understanding of the morphology, ultrastructure, taxonomy, genetics, physiology and ecology of microorganisms, their metabolism and role in the transformation of organic and inorganic substances in the processes of soil and improve soil fertility. The acquisition of theoretical bases and student's practical skills in the study of viruses and how to limit their spread. Special part involves mastering techniques that are necessary to work with viruses of plants and animals, and in particular the methods of diagnosis and viruses identification.

**General biotechnology.** Biotechnology culturing isolated cells and tissue culture of isolated protoplasts, as a basis for cell engineering, the use of in vitro methods in plant breeding, genomics basis, the methodology of genetic engineering, transgenic plants, agricultural DNA technology, teaching the basics of production and use of transgenic animals genetic therapy, biotechnology components of food, enzyme technology, engineering enzymology, industrial biotechnology, environmental issues safety of biotechnology are studied in the discipline.

**Genetics.** We study heredity and variability of living organisms. The laws of heredity and variation are valid for all organisms and determine the development of life, because genetics is the theoretical basis for all disciplines, which have as their object living organisms. Heredity and variation is studied on the molecular, cellular and population levels.



**Biotechnological processes and equipment manufacturing.** The purpose of discipline is mastering the principles of biotechnological processes, technologies and facilities that provide them, and how to determine the basic parameters of raw materials and product biotechnological process.

**Electrical engineering and electronics basics.** Learning the basics of electrical engineering, which are necessary for in-depth study of electric drives and controls workflow in biotechnology in agriculture.

**Automation biotech industries.** The purpose of teaching the preparation of biotechnologists is mastering the theory and practice in the application of methods of complex systems of biotechnology by new technology and finding the best option performance.

**Regulatory support biotech industries.** The principles and methods of technical regulation and its components: standardization, conformity assessment, metrology, requirements for EN, TR, GATS and their place in the world of modern regulations, the requirements of the Directives mandatory for the European market requirements for safety and quality certified quality system of manufacturers, quality indicators to measure them using all methods of measurement metrology studies, the definition of products in low concentrations GMO, ways and problems of harmonization of Ukrainian system of standardization and certification in the field of biotechnology with international rules and regulations are studied in the discipline.

**Fundamentals of designing.** The development of students' design methods biotech equipment, mastering the necessary techniques development and introduction of new bioprocess. The basis of biotechnological processes, equipment and tools to perform basic process operations, the theoretical basis for calculation of parameters of machines and their working groups are covered in the discipline.

**Economics and Organization biotech industries.** Study on the economic substance and business enterprises, their place and role in the market economy mechanism of creation, operation and management of agricultural businesses using biotechnology. Consider the criteria and indicators of the development of biotechnological production, ways and means of rational use of land, material and labor resources. Method of determining the economic efficiency industries are served. The conditions of the costs and profitability of agricultural and biotechnology industries as well as financial services, operation of business enterprises are highlighted.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines "History of Ukraine Statehood", "Ethnocultural", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language (English, German, French, Spanish)", "Physical Training", "Labour and Life Safety", "Legal Personal Culture" see Section 2.1.

**Instrumental methods of analysis.** We study the basic theoretical principles underlying physical, chemical and visual instrumental systematic study of biological objects in vitro and in vivo learns the basic techniques of electrophoresis, chromatography, colorimetry and spectrophotometry, the technique works on light, fluorescent, confocal and electron microscopes that is necessary for the formation of highly qualified specialists in the field of biotechnology and ecology.

**Biology (Zoology).** Students gain competence in the basics of taxonomy and faunal diversity of the functioning of individual systems and whole animal organism, the origin and evolution of the major types of wildlife, routes and destinations animal adaptations to living in a changing habitat.

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**Computer technology and programming fundamentals.** We study the basic concepts and definitions database rules for their design, development methods tables, forms, reports, queries, templates, dynamic forms for data entry. Students are introduced to modern methods of data analysis, computational algorithms data, create a program for the implementation of computational algorithms.

**Radiobiology and radiocology.** The course considers the principles of agricultural radiobiology and radioecology; it introduces into the problems of biological impacts of ionizing irradiation, radionuclide migration in the environment and in the agricultural objects, the basic concepts of the radio ecological and dissymmetric monitoring; it presents the structure of the radiation control system, the methods of assessment and normalization of the doses and permissible levels of the radioactive contamination in accordance with the norms of radiation safety of Ukraine; it analyzes in details the countermeasures for reduction of the radio nuclides transfer into agricultural production and foodstuffs, as well as the ways for the ionizing irradiation application in the agricultural practice.

**Basic of biodiversity.** We consider the current methodology for the analysis of sustainable development and ecosystem functioning. The main goal of the course is mastering the methodology of quantitative and qualitative assessment of biodiversity, master techniques of modern analysis of ecosystems, which are basic in the study of population and interpopulation relationships, the main provisions of modern ecology and biology, the evolution of living organisms in the biosphere, environmental problems of today and how their solution.

**Proteomics and genomics.** The acquisition of theoretical foundations and formation of appropriate skills in the study of viruses and their spread in agroecosystems. Special of the discipline makes it possible to learn basic techniques in working with virological material, identify the virus by biological testing, electron microscopy, immunoassay methods and obtain virus-free planting material by microclonal reproduction is necessary for the formation of highly skilled agriculture.

**Biosafety (the use of biotechnology).** We study the heredity and variation of organisms with artificially created new features, as well as their distribution and possible consequences for ecosystems.

**Plant physiology.** We study basic physiological processes in plants, physiology and biochemistry of plant cell, plant water exchange, photosynthesis, respiration, mineral plant nutrition, growth and development of plants and plant resistance to adverse conditions.

**Industrial Biotechnology.** Study the physiological characteristics of industrial strains, culture media preparation technology for various industrial strains of microorganisms, methods of cultivation, management of industrial strains growing and getting their products from microbial synthesis templates and key stage biotech industries, methods of cultivation producers, operating principles and design bioreactors, directions of substances of primary and secondary metabolism, control methods for the biosynthesis of products based on microorganisms.

**Applied Ecology.** Students acquire skills to: environmental assessment landscape, identifying environmentally safe ways of objects of the economy, including biotechnology industries; forecasting of emergency situations and making appropriate decisions for the stability of the functioning of the economy, and protection of personnel from possible consequences of accidents, natural disasters, modern destruction and during liquidation of consequences.

**Bioengineering.** Cell culture of higher plants, the main types of bioprocess, biotechnology receiving primary, secondary metabolites, the basic principles of industrial implementation of biotechnological processes, circuits fermentation processes, bioreactors, immobilized enzymes and proteins, enzymes technology, technology,

monoclonal antibodies, enzyme immunoassay, biosensors the basic directions and objectives of modern bioengineering, molecular basis of bioengineering, molecular organization of genomes, obtaining individual gene vectors for genetic engineering, expression of cloned genes, genetic engineering of plants, animals, gene therapy, biotechnology and biosafety are studied in the discipline.

**Introduction to profession.** As a discipline taught the basic principles and theoretical foundations of biotechnological approaches for culturing cells and tissues under in vitro in plant, medicine, pharmacology and other sectors of the economy, the theoretical and practical aspects of industrial biotechnology ecobiotechnology, genetically engineered immune biotechnology, biotechnology fuels, which contributes to better perception of current biotechnological developments, targeting areas in modern biotechnology.

**Immunogenetics.** We study the basic concepts and theoretical foundations of current regulations and laws immunogenetics, the formation of humeral and cellular immunity and its role in the development of several pathological processes, teaching methods, approaches and application development used in modern practice based on the use of components of the immune response and given the specificity of the interaction of antibodies with different substances that have antigenic determinants.

**Molecular biotechnology.** The structure of nucleic acids, DNA replication, replicon in eukaryotes, local amplification of DNA, replication errors, transcription in prokaryotes, promoters in eukaryotes, chromatin, the processing of RNA, reverse transcription, DNA repair, recombination, gene conversion, recombination specific, mobile elements of the genome, the general scheme of protein synthesis, the discovery of RNA transport, ribosomal proteins, translation initiation, elongation, regulation of translation in prokaryotes, regulation of translation in eukaryotes are studied in the discipline

**Technology microbial synthesis of drugs.** The course provides a system of knowledge about technology and the use of antibiotics, enzymes, vitamins and genetically engineered protein drugs. Shows the current understanding of the biological role of antibiotics, especially the biosynthesis of antibiotics by different groups of producers, biological bases of fermentation to produce antibiotics and general principles of technology of production, mechanisms of action and practical use. Explored technological features culturing microorganisms to produce enzymes, methods of isolation and purification of enzymes, production technology proteolytic, amylolytic, lipolytic and other enzymes, modern methods of immobilization of enzymes and their practical use. Students will become familiar with modern technology getting some vitamins microbial synthesis, recombinant proteins, methods of isolation and purification.

**Technology of production of microbial products for agriculture.** The course provides knowledge of the system to prevent the negative effects of chemicals by using elements of biological agriculture-based mineral plant-microbe interactions, in particular - the technology of microbial preparations from phosphatmobilizing and nitrogen-fixing bacteria, germs, pathogens antagonists that regulate the power on crops, raise their productivity and resistance to diseases. Microbial preparations to improve their production technology - is an important element of modern ecologically safe technologies for growing high-quality agricultural products does not lead to a deterioration of the environment and saves material resources sector. These students' knowledge on the use of new technologies microbial products for agriculture will be one of the solutions to environmental problems of agriculture in Ukraine.

**Ecological biotechnology.** The course deals with the discipline of modern methods of biotechnology to solve environmental problems that uses biological systems, living organisms and their metabolic products. Methods of cleaning the environment from man-made pollution, restore soil fertility, replacing chemicals, receive and environmentally optimized polymer modification and prevention biocorrosion, biodeterioration and biofouling, study methodological approaches to major destinations provide effective

cleaner processes production, switching to closed loop water, anti-corrosion and microbiological biodeterioration of materials, plant biosecurity and the creation of new effective biocides are discussed in the course of discipline "Ecobiotechnology".

## **2.2. Disciplines offered by students**

### **2.2.1. Specialization «Environmental biotechnology»**

**Environmental Toxicology.** Exploring sources of ecotoxins and their behavior in abiotic components of ecosystems, bioavailability, metabolism and bioaccumulation in living organisms, toxic effects of ecotoxins and products of their transformation on the ecosystem. Study of Environmental Toxicology, is to capture the essence of theoretical knowledge about the science of poisons, as well as practical skills of action and means of preventing adverse effects of toxicants on ecosystems and humans.

**Energetical biotechnology.** The course "Energetical biotechnology" is considered to be all possible sources of energy derived from fossil as well as alternative sources. Considers energy, environmental and economic performance of energy is considered. The course may be controversial about the applicability of the considered fuels as energy sources for the purposes of Ukraine.

**Technology of bioproduction.** Purpose of the discipline is to consider using technology Bioproduction agricultural and industrial production, given the urgent needs of agricultural production and new promising developments of agrobiotechnology, the formation of students' theoretical and practical knowledge to ensure the implementation and operation of Bioproduction technology in real working conditions of agricultural enterprises and regional bio-laboratories.

**Fundamentals of plant biotechnology.** The purpose of this course is mastering the theoretical foundations and the formation of appropriate skills. Special of the discipline makes it possible to learn the basic techniques and skills with the culture of plants in vitro, a transgenic plant or plant resistant to herbicides, diseases, adverse environmental conditions, it is necessary for the formation of highly skilled agriculture.

**Bioconversion of waste.** The subject examines the transformation of organic material such as plant or animal waste, into usable products or energy sources by biological processes or agents, such as microorganisms. The program includes theoretical concepts ecobiotechnology (physico-chemical and biological recycling processes) and biotechnological methods for processing agricultural waste (biomass composition, wastewater treatment and solid waste, energy production, etc.)

### **2.2.2. Specialization «Agricultural biotechnology»**

**Environmental safety in agriculture.** Discipline course examines issues of food security through the introduction of sustainable agricultural practices, improved quality of products and raw materials, ways to improve the processes of industrial processing of raw materials, promote the implementation of sustainable methods of afforestation, reforestation and decontamination of hazardous waste, how to preserve biological (in t.ch . genetic) resources to ensure sustainable development of the biosphere, the development of environmental emergencies and implement appropriate solutions to ensure the stability of the functioning of the economy, and protection of personnel against possible consequences of accidents, natural disasters, modern means of destruction and during liquidation of consequences.

**Terrestrial ecosystems and biomonitoring methods.** Generates specific knowledge about the diversity of terrestrial ecosystems at various levels of the organization, diversity and similarity of functional relationships in ecosystems on different

continents, and introduces the typical forms of anthropogenic transformation of terrestrial ecosystems and the possibility of using biomonitoring methods for their study and environmental control. Future specialists acquire basic theoretical principles and practical skills on the structure and functioning biocenotic land cover on Earth, which is the main habitat of man. In general, the course includes three sections: general understanding of terrestrial ecosystems and their components, natural terrestrial ecosystems in the world (major biomes of the world) and ecosystem Ukraine and biomonitoring methods in the study of man-land ecosystems.

**Agricultural biotechnology.** The purpose of discipline is to familiarize students with the principles of the use of biological knowledge in agricultural production and use agrobiotechnological methods in various fields of agriculture.

**Biomethods of protection of products.** Familiarizing students with the issues of biological protection of crops from pests and based on this knowledge alone implement bio security, integrated systems of protection of crops and fruit trees in production under different forms of management based on species composition of harmful and useful fauna and flora, agro-climatic conditions area, and so on.

**Biotechnological processes agricultural technologies.** Exploring one of the priority areas of biotechnology, what covers both basic research and applied studies of the use of living organisms or other biological agents for sustainability and quality of agroecosystems. Development of new technologies, plant growth regulators, microbial plant protection from diseases and pests, bacterial fertilizers.

**Bachelor  
in specialty “ECOLOGY”  
field of knowledge “Natural Sciences”**

Form of Training:	Licensed number of persons:
- full-time	75
- part-time	75
Term of studying	4 years
Credits	240 ECTS
Language of tuition	Ukrainian, English
Qualification after graduation	Bachelor of Ecology

**The concept of training**

Preparation concept is to develop future ecologists' professional knowledge, hand-on experience, skills, proficiency and ecological competence, environment protection (according to types of economic activity) and balanced nature management (by types of land, water, forest use also usage of flora and fauna), which are ready for practical, professional-oriented and environment protection activity in Education, Science and Culture.

**Practical training**

Specialists handling competence takes place at research-and-development farms Separated subdivision of NULES of Ukraine “Velykosnytsinske Education and Research Farm named after O.Muzychenko”, “Agronomic Research Station” and Institute of Agroecology and Nature Management of National Academy of Agrarian Sciences of Ukraine, Institute of Plant Protection of National Academy of Agrarian Sciences of Ukraine, “Svitanok-agrosvit” LLC, Ukrainian State Science and Research Institute “Resurs”, Scientific and Productive company “Agroecosystema LTD” LLC.

**Proposed Topics for Bachelor theses**

1. Environmental Assessment of crop production technology.
2. Environmental analyses of hydrologic systems function compatibility.
3. Health-related monitoring and ecological certification of safe water-source supply.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog

**Spheres of Bachelors employment**

Work placements are branch enterprises (agricultural, recycling, nature protection oriented organizations, ecological and naturalist centers, scientific laboratories of ecological monitoring, inspections, certification) at different professional environments.



### Bachelors Program and Curriculum in Specialty "Ecology"

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Political Science	5	60	2
2	Sociology Science	6	60	2
3	Psychology and Education Science	6	60	2
4	Social Ecology	6	90	3
5	Higher Mathematics	1-2	180	6
6	Physics	1	90	3
7	Informatics and Systematology	3-4	180	6
8	General Ecology	3-4	180	6
9	Chemistry and Fundamentals of Biochemistry	7	180	6
10	Biology	2	120	4
11	Geology with Fundamentals of Geomorphology	2	90	3
12	Hydrology	2	90	3
13	Agrology	3	90	3
14	Meteorology and Climatology	1	90	3
15	Introduction to Specialty	6	150	5
16	Wildness protection	5	90	3
17	Landscape Ecology	4	120	4
18	Techno ecology	5	120	4
19	Ecological Compliance	5	120	4
20	Welfare and Safety	3	60	2
21	Human Ecology	4	90	3
22	Ambient Monitoring	6	180	6
23	Environmental Law	8	60	2
24	Regulatory Actions Anthropogenic Load upon Environment	4	180	6
25	Economics of Nature Management	7	120	4
26	Ecology of Urban Systems	7	180	6
27	Modeling and Environment State Forecasting	8	90	3
28	Environmental Assessment	8	180	6
Total for standard part			3300	110
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukraine Statehood	1	120	4
2	Etnocultural	5	120	4
3	Philosophy	1	120	4
4	Ukrainian for professional purposes	1-6	150	5
5	Foreign language (English, German, French, Spanish)	1-4	120	4
6	Physical training	3	120	4
7	Labour and life safety	3	60	2
8	Scientific Activities Fundamentals	7	180	6
9	Ecology of Biological Systems	5	150	5
10	Environmental Protection	7-8	180	6
11	Sustainable Nature Management:	7-8	180	6
12	Agro ecology	6	180	6
13	Ecotoxicology	7	120	4
14	Environmental Biotechnology	7	120	4
15	Agricultural Products Quality Management	8	90	3
16	Radiobiology and Radioecology	5	90	3
17	Topographies with Cartography Fundamentals	4	120	4
Total (Disciplines offered by University)			2220	74

<b>2.2. Disciplines offered by students</b>				
<b>2.2.1. Specialization «Ecological Agricultural sphere»</b>				
1	Environmental Protection Agricultural Ecosystem	8	180	6
2	Ecological Farming	8	180	6
3	Agricultural Chemistry	8	90	3
4	Biological Technology in Agricultural Sphere	8	90	3
5	Research-and-development Workshop	7-8	90	3
<b>Total for Specialization</b>			<b>630</b>	<b>21</b>
<b>2.2.2. Specialization "Ecological problems of rural agglomerations"</b>				
1	Recreational potential of agrolandscapes of Ukraine	7	180	6
2	Balanced development of rural areas	8	90	3
3	Social Ecology	8	90	3
4	Ecological safety of residential and industrial areas	6	90	3
5	Research-and-development Workshop	7-8	90	3
<b>Total for Specialization</b>			<b>630</b>	<b>21</b>
<b>Total (Disciplines offered by students)</b>			<b>630</b>	<b>21</b>
<b>Total for elective part</b>			<b>2850</b>	<b>95</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training course	5-8	360	12
2	Academic Practice	2,4,6	450	15
3	Production Practice	4,6	360	12
<b>Bachelor Thesis writing (Graduate thesis or Project)</b>			<b>60</b>	<b>2</b>
<b>State Attestation</b>			<b>180</b>	<b>6</b>
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Political Science.** Students gain knowledge at main theoretical positions of Political Science taking into account latest national and foreign achievements; skills and proficiency in discovering main development trends in Public relations, defining main points and social political foundations; scientific and methodological Public Relations fundamentals.

**Social Science.** Considers forming of knowledge system about social system of society, social culture, labour and management sociology, get to the heart of social life and culture of society and skills to analyze social phenomenon and processes.

**Psychology and education science.** Forms students' skills about research psychological and pedagogical methods, regularity of some psychical phenomenon and interrelation, types and styles of personal management activity; skills to found out right ways from conflict situations, define and choose correct team management style.

**Socil Ecology.** Forms knowledge according to reasons, scale and consequences of national nature management, finding ways to cooperation with present crisis in interaction between society and nature, socioecological facts of new ethical attitude towards nature from human side; skills to develop management strategy to run anthropogenically and natural ecosystems.

**Higher Mathematics.** Provides forming of knowledge from fundamental sections of Higher Mathematics that corresponds students' professional preparation program: definitions, theorems, rules, forming of initial skills, self directed learning of math's literature and other informational sources, solution to equation of simple algebraic

equations, applying of integral calculus; solution of differential and difference equations and their systems; investigating of nearly poised series upon the sum total and using of nearly poised series for approximation computation, and analysis of different environmental processes.

**Physics.** Forms knowledge about processes that take place at biological systems and are life foundation and activities of wild-life, fundamental principles of physics which underlie life and activities of agricultural plants, synergies between plants and environment, physical factors influence over seed grains, plants and environment for increasing crop-producing.

**Informatics and Systematology.** Forms knowledge about methods, typical target settings and formalization for processing and databases maintenance, principles of their solvation by computerized tools, conceptual frameworks structural principle electronic document flow system; proficiency to choose technological schema appliance of system-wide and specialized packages of application programs and using them for handling of applied ecological, environment protection problems and sustainable nature management.

**General Ecology.** After taking over the course students are gaining knowledge about fundamental ideas of Ecological Science: doctrine about biosphere and ecosystems, sources and flaws of energy issues in ecosystems, influence pattern of ecological factors, biotic relation between bionts, species and populations; skills to define natural-resources potential of ecosystem and socioeconomic analyses of their macroeconomic activity.

**Chemistry of the basics of biogeochemistry.** Provides formation of knowledge of biogeochemical aspects of the biosphere and principles of operation, types of migration, biological cycle and biogeochemical cycles of living matter; abilities to apply methods of biological indication for environmental biogeochemical zoning predict measures to obtain high-quality environmentally friendly agricultural products, analyze situation of biogeochemical endemic regions, to develop recommendations for optimization of anthropogenic landscapes in order to minimize the negative impact of human activity and maintaining a balance between ecosystem components.

**Biology.** As a result of studying the course students gain knowledge of the impact of economic activities on natural habitats, the most common species of higher plants, plant communities and flora regions, methods and floral phytocenology research, abilities and skills of geobotany description of meadow, forest and anthropogenic plant communities, identifying plants of various types and indicators habitat and to identify reservations virus infections in agrocenoses.

**Geology with geomorphology basics.** Generates knowledge about the structure of typing and classification of landforms and geomorphological zoning areas, interconnections and the relationship between geological structures and morphology of the terrain, the ability to establish relationships of soil factors, to determine the erosion processes in different soil-climatic and geomorphological conditions, assess erosion control measures and their role in improving the environment.

**Hydrology.** Generates knowledge of the hydrological regime of water bodies, environmental problems of water resources, ecological and methodological foundations of hydromorphological analysis of aquatic ecosystems, skills and abilities to determine the conditions of biota effects on aquatic ecosystems of natural and anthropogenic factors, impacts on water ecosystems.

**Agrology.** Generates knowledge about soil as a natural body and an integral part of the geosphere, the specific conditions of the soil structure, properties, structure, soil characteristics and patterns of distribution of different soil types, the ability and skills to carry out morphological description, which define the basic tonal processes in soils, diagnose the properties of mineral and organic parts of the soil, to analyze soil conditions for high yield.

**Meteorology and Climatology.** Generates knowledge about basic meteorological factors, structure, properties and physical processes, meteorological phenomena and mechanisms, ensures the acquisition of skills to assess synoptic weather, meteorological factors influencing agrosphere, using meteorological observations for integrated environmental analysis of the environment condition and making weighted environmental solutions.

**Introduction to speciality.** 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.

**Wildness protection.** Provides formation of knowledge and skills of complex of organizational, legal, scientific, economic, and educational activities designed to preserve the unique and typical landscapes or specific natural objects of scientific, environmental purposes.

**Landscape Ecology.** The discipline ensures the acquisition of knowledge from learning the basic landscape types, namely the overall structure and the basic principles of their formation, their properties, studying the influence of different activities on landscape and the specifics of transformations as a result of anthropogenic factors. During training, students acquire skills to provide general characteristics of condition of landscapes to determine their environmental sustainability, and develop activities to prevent and stop the degradation phenomena, using the latest technologies and approaches.

**Techno Ecology.** The discipline provides the formation of knowledge and skills to assess the possibility and effectiveness of using alternative energy sources on the basis of ecological and economic analysis of manufacturing processes, to evaluate the features of technogenic pollution of geosphere.

**Ecological Compliance.** Generates knowledge on fundamental and applied aspects of ecological safety of environment and skills for using techniques and methodologies to assess the environmental impact, the risks of disasters, processing, analyzing, organizing and summarizing information on environmental safety.

**Welfare and Safety.** The discipline provides the formation of knowledge about the legal and organizational issues of labor protection. base physiology, occupational health and industrial hygiene, ways and means of protecting people from harmful and dangerous industrial factors, the ability to create measures for rational use and preservation of reserves of financial and material resources necessary for resolving issues of health and safety at work.

**Human Ecology.** Provides knowledge about patterns of human interaction with the environment, its impact on the preservation of health, adaptation of the human body to technological changes in the environment, the ability to use mapping, mathematical, statistical, social and hygienic methods of monitoring and control in the field of human ecology, to apply methodology for determining environmental Chronobiology aspects for the study of biological rhythms and their adaptive role in anthropogenic ecosystems.

**Ambient Monitoring.** Generates knowledge about the system of state environmental monitoring, monitoring of air, groundwater of agrosphere, soil and environmental monitoring, monitoring of phytosanitary pests in agroecosystems, skills and abilities of environmental-monitoring reclamation of irrigated and drained lands, to determine the extent of disease assessment.

**Environmental Law.** Provides a study of current environmental legislation and environmental and legal issues facing the science of environmental law, the study of current natural resource legislation, the main problems related to land use, water use, mineral resources, forest management, using air, flora and fauna, the study of current

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natural resource legislation, the main problems related to the protection of land, water, minerals, forests, air, protection of flora and fauna

**Normalization of anthropogenic impact on the environment.** Provides acquisition of knowledge about general characteristics of the problem of anthropogenic impact and the rationale for its regulation, the main types of anthropogenic pressures and those human activities that can cause them, the theoretical aspects of scientific substantiation standards of influence of factors of physical, chemical and biological nature, charts of rationale of regulations and the possibility of their use in practice.

**Economics.** Provides the formation of students' environmental and economic outlook and provide them with relevant knowledge which will allow future professionals not only determine the level of environmental pollution, the value of damage caused by him, but also conduct effective targeted work on its protection and restoration.

**Ecology of urban systems.** Specifies knowledge about the basics of spatial modeling of urban systems, principles and approaches to the classification of natural and anthropogenic landscapes, the characteristics of living organisms, their populations and groups in the urban environment, creates acquiring of skills concerned about urban environment, the city as a specific human environment and biota, urbangeosociosystem, landscape regarding the explanation of the environmental, socio-cultural and technological problems of cities.

**Modeling and prediction of the environment condition.** Provides knowledge of mathematical modeling of the environment condition and the basic laws of distribution of pollutants from the source of emission, the food chain to humans, the basic laws of distribution of pollutants in the environment, their impact on the ecosystem components, the ability to estimate radiation doses on humans, as well as patterns of dynamics of populations of living organisms and their impact on the environment.

**Ecological expertise.** Provides knowledge about regulatory and legislative framework of environmental expert activity, general requirements for environmental assessment, the characteristics of geoecological expert as new research and practical activity to assess the mechanism co-adaptation of natural and economic sub-systems, processes and procedures for geoecological expertise, students gain the ability to: conduct environmental assessment of technologies, materials and products.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines "History of Ukraine Statehood", "Ethnocultural", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language (English, German, French, Spanish)", "Physical Training", "Labour and Life Safety", "Legal Personal Culture" see Section 2.1.

**Fundamentals of scientific activity.** Provides learning of search method, storage and processing of scientific information, methodology and methods of theoretical research, the structure and technology of the experiment, using modern sources of scientific information; skills using simulation and mathematical analysis of the object of research, plan and analyze the results of the experiment.

**Ecology of biological systems.** Provides knowledge of the morphology and physiology of the major groups of microorganisms, their role in the transformation of organic matter in soil processes and increase soil fertility, the role of microorganisms in the synthesis of humus and formation of soil structure, the impact of farming on microbiological processes. Students acquire skills to determine the status of populations of organisms, identify species, measure the number and status of populations, to develop ways to prevent and suppress viral infections.



**Environmental protection.** Provides acquisition of knowledge and professional abilities and skills of basic and applied ecology, environmental protection (in various industries) skills to solve environmental challenges by selecting the application of environmental scientific research and expert control methods of environmental forecasting, of the environment condition design, environmental control, monitoring, certification, auditing, assessment and inspection of various components of the environment, predict, prevent and eliminate environmental risks and hazards at local, regional, national and global levels.

**The balanced nature management.** Generates knowledge of the socio-economic, environmental and safety, institutional balance of nature by type of land, water, forest management and use of flora and fauna, the concept of ecological safety of agricultural domain. Students acquire the abilities and skills of a systematic approach to identifying and managing the quality of natural resources, development and implementation, assessment of resource and energy-saving agricultural technologies.

**Agroecology.** Provides acquisition of knowledge about the impact of environmental factors on productivity of crops, the structure and dynamics of communities of organisms that live in agrocenoses, the basic laws of agroecology, agroecosystems performance and ways to improve it. Acquire abilities and skills to determine the types of agro-ecosystems and their functioning, ways of greening the various agricultural facilities, and make use of agri-environmental maps and models.

**Environmental Toxicology.** The discipline is focused on the theoretical concepts and knowledge about the impact of exogenous toxicants on living organisms, their reaction to the performance of hazardous chemicals, the mechanisms of adaptation of organisms to the action of xenobiotics and counteract them, skills to master the scientific principles of hazard assessment of chemicals on living organisms and prediction of adverse effects this effect.

**Environmental biotechnology.** Generates knowledge about biotransformation, biodegradation and bioavailability of the major biochemical pathways of microbiological transformation of organic xenobiotics, genetic basis for the creation of recombinant microorganisms, skills and abilities for the biological removal of heavy metals and radionuclides, making phytoremediation, biological purification and deodorization gas-emission of microbial processing of organic waste.

**Quality control of agricultural products.** Provides acquirement of learning the basics of technological methods that form the parameters of quality of crop production, formation of skills for monitoring and use of chemicals in manufacturing processes get crop production, conservation and improvement of soil fertility, including natural conditions, market production, the use of agrochemicals in order to optimize feed crops , increased productivity and a high quality crop production.

**Radiobiology and Radioecology.** Examines the concept and migration of radioactive substances in the agricultural production and the effect of ionizing radiation on phytocenosis and zoocenosis within agrocenosis. Forms skills and abilities to develop ways of contamination of the environment, ways and means of decontamination of food raw materials, the study of the biological effects of ionizing radiation on plants and animals.

**Topography with the basics of cartography.** Provides formation of knowledge on significant spatial model, the mathematical basis for maps, coordinate system topography and cartography, modern methods of targeting areas methods of acceptance and use of topographic maps and plans for environmental monitoring. Students acquire skills to conduct topographically-geodetic measurements, mapping modeling and forecasting.



## **2.2. Disciplines offered by students**

### **2.2.1. Specialization «Ecology of agrosphere»**

**Ecological Protection of agroecosystems.** Generates knowledge about the structure and functioning of agricultural ecosystems, methods for optimizing agricultural landscapes, forecasts of crop diseases in agroecosystems, the ability to identify and take records of pests and diseases, to predict their development, optimizing agricultural landscapes based on contour reclamation of agricultural areas.

**Ecological agriculture.** Involves the study of the specificity of formation and functioning of agroecosystems, key anthropogenic factors that affect the environmental sustainability of agro-landscapes, their performance and ways to improve the ecological basis of the principles of ecological basic technological units receiving agricultural products and raw materials. To be able to develop projects of rotation for a particular sector, their development plans, identify common weed species in Ukraine, which vegetate and seed germination make predictions weeds and develop a system of integrated resource-saving protection against them.

**Agrochemistry.** Involves the formation of knowledge about the basic tasks of chemicals as a basis of agriculture, agro-ecological assessment of mineral fertilizers and their impact on the environment and quality of crop production and technology, charts of and machines for application of organic and mineral fertilizers, agro-ecological potential changes in the environment during their violations.

**Biotechnology in the agriculture.** Generates knowledge of biotechnology cultivation of isolated cells and tissues, preparation and cultivation conditions of isolated cells, tissues and organs, the use of in vitro methods in plant breeding, the ability to conduct morphogenesis and regeneration in callus tissue culture, evaluation of life and degree of aggregation of cell suspensions.

### **2.2.2. Specialization "Ecological problems of rural agglomerations"**

**Recreational potential of agrolandscapes of Ukraine.** Generates knowledge about the functioning of agro-ecosystems, the role of natural biodiversity in agricultural landscapes stability, structure of agricultural landscapes and ecological sustainability; ability to identify natural resource potential of agricultural landscapes to build statistical models and mapping agro-ecosystems, explore their development by means of modern information systems.

**Balanced development of rural areas.** Generates knowledge of the characteristics of the current state of rural areas and the dynamics of rural settlements priorities of their revival, the basic principles of institutional support for development of rural areas of the country with the European practice. Skills in the field of rural development, reproduction and quality of human resources, improve the efficiency of the rural economy, rational use and restoration of natural resources.

**Social Ecology.** Generates knowledge of the characteristics of social ecology as a science, the concept of eco-oriented social development, ecological goals-oriented activities, the main aspects that determine the ecological imperative in the overall management of socio-economic development, basic laws and patterns of interaction between society and the environment. Skills to research the development of modern social and technological processes, their relationships and characteristics and program development of ecologically safe development.

**Ecological safety of residential and industrial areas.** Forms of knowledge of the natural reserve fund with the involvement of territorial communities of villages, settlements and businesses, control and responsibility for the discharge of domestic waste, organizing spontaneous dumps, polluted water into surface water bodies in rural areas. Skills to create the conditions for integrated rural development in the public interest that provides competitive rational formation of diversified and versatile agriculture, diversified rural economy enabling environment based on the growth of human and social capital and development partnership between the state and business.

## 2.4. FACULTY LIVESTOCK SCIENCE AND WATER BIORESOURCES

**Dean – Vadim Kondratiuk**, Associated Professor, Candidate of Agricultural Science

Tel.: (044) 527-85-56 E-mail: vadkondratyuk@ukr.net

Location: Building № 1, Room. 34

The faculty organizes and coordinates the educational process of bachelors in the following specialties:

### ***207 Water Bioresources and Aquiculture***

Graduating departments:

Department of Aquaculture

Tel.: (044) 527-89-65 E-mail: aqua\_chair@twin.nauu.kiev.ua

Head of Department – Nadiya Vovk, Professor, Doctor of Agricultural Science,

Department of ichthyology and Hydrobiology

Tel.: (044) 527-86-83 E-mail: gidrobio@ukr.net

Head of Department – Petro Shevchenko, Associated Professor, Candidate of Biological Science.

### ***204 Technology of production and processing of livestock products***

Graduating departments:

Department of Breeding and Biotechnology of animals

Tel.: (044) 527-82-30 E-mail: krozgen@ukr.net

Head of Department – Andrey Het'ya, Doctor of Agricultural Sciences, Senior Researcher

Department of Milk and Beef Production Technology

Tel.: (044) 527-83-93, (044) 527-82-32 E-mail: ugnivenko@i.ua

Head of Department – Anatoly Ugnivenko, Professor, Doctor of Agricultural Science

Professor P.D. Pshenichniy Department of Animal Nutrition and Feed Technology

Tel.: (044) 527-85-55 E-mail: feeding\_animals@ukr.net

Head of Department – Mikhail Sychev, Professor, Doctor of Agricultural Science

Department of Horse Breeding and Beekeeping

Tel.: (044) 527-82-68 E-mail: horse\_chair@twin.nauu.kiev.ua

Head of Department – Nicholay Povochnikov, Professor, Doctor of Agricultural Science

Department of 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 - Yuri Zasukha, Professor, Doctor of Agricultural Science.

**Bachelor**  
**in specialty "WATER BIORESOURCES AND AQUACULTURE"**  
**field of knowledge "Agricultural science and food"**

Form of Training:	Licensed number of persons:
– Full-time	75
– Part-time	75
Duration of Training	4 years
Credits ECTS	240
Language of Teaching	Ukrainian, English
Qualification	Technologist of Aquaculture Production

**Concept of training**

Modern fish farming requires new technologies that professionals cannot implement without deep theoretical knowledge of such issues as water quality, ecological status of water bodies, value of hydrocole in functioning of aquatic ecosystems, knowledge of water bio-source potential and its sustainable use.

Development of new and improved fish breeding technologies in natural conditions and in industrial farms also require theoretical knowledge about potency of the species, their physiological and biochemical characteristics, processes of acclimatization and adaptation hydrocole undergo under impact of changing, aquatic environment, intensification of fish farming through the use of bio-active substances with the purpose of enhancing bio- and fish productivity of various ponds, preserving in them biodiversity and harvesting high-quality fish products.

In the course of this program, the students will be taught hydro-ecological disciplines: fish physiology, fish genetics, fish anatomy, aquatic chemistry, hydrochemistry, fish breeding and selection; professionally oriented disciplines: biological basis of fisheries, research methods in fish farming, aquarium basics, bioresources of hydrosphere and their use; fish processing technology and preparation technology: design of fish-breeding enterprises, aquaculture of natural ponds, aquaculture of artificial reservoirs, fisheries hydraulic engineering with the basics of geodesy, fishing farming and others.

By the end of their studies the experts on aquatic biological resources and aquaculture in process of their training acquire the strong fundamental and practical training in cold and warm water fish farming.

**Practical training**

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.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Specializations specified in Table 1.2 Section 1.3 this Catalog.

### **Employment of Graduates**

Upon successful completion of bachelor's degree course the specialist can perform professional work specified under the Classification of Occupations DK 003-2005, approved and put into effect by Resolution № 257 dated 27.07.1995 of State Committee of Ukraine for Standardization under the following classification groups and professional work titles: laboratory technician (biological research), laboratory technician assistant (biological research), fish culturist-technician, aquaculture technician, fish culturist-engineer, aquaculture process engineer, state fisheries inspector and may hold primary positions of a fish culturist, ichthyologist, hydrobiologist and state inspector.

**Bachelor`s Program and Curriculum in Specialty  
«Water Bioresources and Aquaculture»**

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Introduction to core professional course	1	90	3
2	Chemistry	1	150	5
3	Zoology	1, 2	270	9
4	Hydrochemistry	2	150	5
5	Hydrobiology	2, 3, 4	330	12
6	Ontogeny of fish	2	120	4
7	Hydrology and meteorology	3	120	4
8	Physiology and Biochemistry of fish	3, 4	240	8
9	Fish anatomy	3	120	4
10	Fish genetics	3	120	4
11	Ichthyology	4, 5	270	8
12	Hydroecology	4	150	5
13	Fishing	5, 6	180	6
14	Ichthyopathology	5, 6	210	7
15	Cultivation and breeding of fish	5, 6	180	6
16	Hydroengineering and designing of fish-breeding enterprises	5	120	4
17	Aquatic toxicology	5	120	4
18	Feeding of fish	6	150	5
19	Biological basis of fish farming	6	120	4
20	Aquaculture of natural reservoirs	7, 8	210	7
21	Aquaculture of artificial reservoirs	7, 8	300	10
22	Fish processing technology	7	120	4
23	Economics of fishery enterprises	8	180	6
Total for standard part			3900	130
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	The history of Ukrainian statehood			
2	Ethno culturology			
3	Philosophy			
4	Ukrainian language for professionals			
5	Foreign language	3	120	4
6	Physical education	3	90	3
7	Life and work safety	6	150	5
8	Personality's legal awareness			
Total (Disciplines offered by University)			1380	46
2.2. Disciplines offered by students				
1	Latin	1	90	3
2	Mathematical Methods in Biology	2	150	5
3	Biophysics aquatic	2	150	5
4	Aquatic microbiology	3	120	4
5	Fundamentals of fishery protection	4	120	4
6	Bioresources of hydrosphere and their use	5	120	4
7	Raw material of fishery	6	120	4
8	Technical equipment in fish farming	6	120	4
9	Research methodology in fish farming	7	120	4
10	Acclimatization of hydrobionts	7	90	3
11	Pedagogics	7	90	3
12	Foundations of aquarium study	7	90	3
13	Principals of livestock farming	8	120	4
14	Fishery laws	8	120	4
Total (Disciplines offered by students)			1620	54



<b>Total for elective part</b>			<b>2520</b>	<b>84</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training course	5, 6	<b>690</b>	<b>23</b>
2	Academic Practice	2, 4	<b>480</b>	<b>16</b>
4	Production Practice	6	<b>240</b>	<b>8</b>
<b>State Attestation</b>			<b>60</b>	<b>2</b>
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Introduction to core professional course.** The discipline introduces students to the content of future professional work; prepares them to completely and thoroughly master the disciplines of science, professional and practical training cycles, as well as acquire knowledge and skills during their practical hands-on training. The discipline is harmoniously combined with other disciplines that make up the basis of theoretical and practical training, especially with hydrochemical, hydrobiological, ichthyological disciplines and their technological components.

**Chemistry.** This is a fundamental discipline of natural science taught to students with major in "Water Bioresources". It provides a theoretical basis for studying fish physiology, biochemistry, aquatic, feeding fish, fish genetics, basics of biometrics and other training courses taught to ichthyologists and fish breeders. The purpose of this discipline is to educate future professionals modern concepts of organic chemistry enabling them to acquire in-depth knowledge necessary for study and application of related disciplines. In addition, this discipline provides an understanding of the animal tissues' structure and chemical processes occurring in living systems.

**Zoology.** The discipline focuses on morphology and anatomy of animals, their physiology and ecology, taxonomy and geographic distribution, location and role animals play in ecosystems and agrocenoses. It contains a fundamental base of knowledge about animals and is an applied discipline for ichthyologists, livestock experts and environment protection engineers.

**Hydrochemistry.** The discipline examines the chemical composition of natural waters and artificial water bodies; the cycle of chemical elements in water ponds; patterns of temporal and spatial changes in chemical composition of water under the influence of biotic and anthropogenic factors and chemical processes shaping the quality of water.

**Hydrobiology.** The discipline examines population of various reservoirs, environmental factors and general patterns of their effect on living organisms; the general laws applicable to life of populations and biomes; formation of water quality and biological productivity in aquatic ecosystems.

**Ontogeny of fish.** There is a discipline of biology individual fish from the conception of a new body (fertilization of eggs) to its natural aging and death. Studies features spermatogenesis and oogenesis, fertilization, and embryonic postembryonic periods of fish of different species and taxonomic groups and theoretical basis of modern technologies in fish farming. The discipline covers the biology of a fish development starting from beginning of pregnancy (fertilization of eggs) to its natural aging and death. It studies the peculiarities of spermatogenesis and oogenesis, fertilization, embryonic postembryonic periods of fish of different species and systematic groups and theoretical basis of modern technologies in farm farming.

**Hydrology and meteorology.** The discipline studies the physical and chemical properties of water within the hydrosphere of the Earth and phenomena and processes that occur in it; explores circulation of water in nature and the impact of human activities; the value of the hydrological regime in aquatic organisms' vital activity; develops methods of groundwater management regime and water regime; meteorology is the composition and structure of atmosphere; its heat treatment; electric fields; optical and acoustic phenomena; circulation patterns of air masses; water exchange in the atmosphere and between the atmosphere and hydrosphere.

**Physiology and Biochemistry of fish.** The discipline studies specifics of functional activity of all body systems in different fish species at cellular, sub-cellular, tissue, member and body levels, which allows assessing the physiological status of fish under normal conditions and exposed to natural and anthropogenic factors. Physiology of fish introduces students to mechanisms regulating physiological functions of all systems that provide interaction between fish body and the environment. This is a basic discipline that helps students to get acquainted with basic concepts on proteins, lipids, carbohydrates, minerals, vitamins, enzymes, hormones, their biological roles in the body; the discipline is of considerable practical importance. The discipline is an objective foundation for modern fish farming and related industries. Mastering knowledge of aquatic biochemistry allows specialists to understand different biotechnological processes in aquaculture products' production and processing.

**Fish anatomy.** This is a morphological discipline that studies the structure of the fish body and is essential for training of ichthyologist/ fish breeder. The study of anatomy lays down foundations of knowledge about the body structure of fish in terms of species and age factors; the main objective of the discipline is to provide students with knowledge about structure and patterns of ichthyoid and fish body in the light of causality and species specificity.

**Fish genetics.** The discipline lays down basics of the science of heredity and variation. It plays a leading role in the study of many problems related to the essence of life and evolution. The discipline is a scientific basis for selection and breeding of plants, animals, fish, and microorganisms.

Genetics is necessary to understand the nature of fish immunity against pathogens and develop methods of genetic protection against them. The study of physical and chemical mutagens and their mechanisms is important for breeding work and genetic pollution of environment, protection of heredity in humans, animals and fish against harmful mutagenic action. Knowledge of the genetic information, ways of its implementation in ontogeny and the role of environment will help selecting conditions fostering most useful properties and higher productivity in fish.

**Ichthyology.** This is a basic discipline for ichthyologists, fish breeders who study the structure of ichthyoid and fish, their origin and place among chordate animals; some components of fish living environment and their propagation in continental waters and oceans.

**Hydroecology.** The discipline examines ecological status of different water bodies in dynamics; establishes factors that cause seral changes in aquatic ecosystems; exposes major problems in the functioning of aquatic ecosystems of different types and ways of addressing them in conditions of human impact.

**Fishing.** The discipline is aimed at educating skilled professionals whose work is related the protection, cultivation and use of aquatic facilities.

During the program, students will gain knowledge about the most common fishing gear, materials necessary for their production, catching gear, main types and design features of industrial ships.

**Ichthyopathology.** The discipline studies fish diseases of different nature; factors contributing to their occurrence; general pathology; epizootiology, parasitology and host

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defense mechanisms in fish; modern diagnostic techniques; basic veterinary and sanitary measures that are used in fish farming. Objective of the course is to teach students a creative, integrated approach by using acquired knowledge and taking into account the environmental situation when solving fish health problems in natural and artificial fish communities.

**Breeding and selection of fish.** The discipline is a combination of theoretical and practical knowledge about fish farming and breeding based on studies of contemporary breeding and selection; fish breeding; fish gene pool characteristics; study of the basic methods used to breed and rear replacement youngsters and make up breeding fish shoals; practical introduction to main fish breeding processes and methods.

**Hydroengineering and designing fish-breeding enterprises.** In the course of professional training of qualified specialists the best practices of modern domestic fishery enterprises is used; the students get familiarized themselves with the structure of fish farms, production facilities, design and construction of hydraulic structures providing water for process purposes.

The objective of the discipline is to provide students with necessary knowledge about the design of hydraulic structures in fishery farms; designing, building and operating hydraulic structures; technical feasibility of fishery construction; current and capital repairs.

**Aquatic toxicology.** The discipline examines the sources and ways of toxic substances' entry into the water, their migration, transformation and accumulation in aquatic ecosystems; the impact of toxicants on aquatic activity at level of individual organisms, populations and ecosystems.

**Feeding of fish.** The discipline provides future professionals with the basic knowledge about energy conservation, science-based technologies, storage and use of fish feed for achieving high efficient fisheries under conditions of economic activity.

**Biological basis of fish farming.** The discipline is part of fish breeders' training and is meant to foster in students theoretical framework underlying the fish breeding processes considering environmental and biological characteristics of fish facilities, biological acclimatization, artificial reproduction of fish and intensification of fish-breeding.

**Aquaculture of natural reservoirs.** The discipline provides knowledge about technological requirements that apply to mixed-use reservoirs for fishery purposes, to methods of building ichthyofauna and fish breeding biotechnology in these reservoirs. Future aquaculture production technologists require knowledge of this discipline to be able to intensify fish farming in rivers, lakes and reservoirs; improve technologies of artificial reproduction of valuable, rare and endangered species, facilitate the processes of fish species' natural reproduction and preservation of biodiversity in aquatic ecosystems.

**Aquaculture of artificial reservoirs.** The discipline examines the organizational structure of pond and industrial fish farms, biological basis of comprehensive intensification in aquaculture designed to increase biological productivity and fish productivity of reservoirs; technologies of cultivation facilities; production of planting material and marketable fish in warm-water and cold-water ponds and industrial aquaculture, taking into account systems, forms and cycles of fisheries management.

**Fish processing technology.** The discipline learns a set of theoretical and practical knowledge about standardization of pond and ocean fish production and processing. The students acquire this knowledge by studying the current state of breeding, selection, pond fish farming and fish processing; properties of basic technological techniques: storing, freezing, drying, curing, smoking, canning and achieving qualitative indicators of semi-finished and finished fish products; methods for determining quality indicators.

**Economics of fishery enterprises.** The object of the study is the accounting system of Ukrainian fisheries. The discipline includes analysis of trends and issues in fish farms accounting. Particular attention is paid to methodological aspects and methods of fisheries recordkeeping, accounting regulations (standards), accounting policies, primary

documents, registers, charts of accounts, conducting accounts in conjunction with industry characteristics, account classes, accounting of biological assets, cost accounting and calculation of aquaculture product prime costs, classification of production costs, accounting of fixed assets, accounting of leases, depreciation, inventories, accounting of current assets, accounting of cash funds, accounting of cash payments, long-term liabilities, accounting of labor costs and labor remuneration in fish farming industry, accounting of income and financial results in fish farms, off-balance sheet accounts, balance sheet items (assets, equity, liabilities), basic forms of financial statements (balance sheets, income statements).

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines "History of Ukrainian Statehood", "Ethnocultural", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language (English, German, French, Spanish)", "Physical Training", "Labour and Life Safety", "Legal Personal Culture" see Section 2.1.

### **2.2. Disciplines offered by students**

**Latin.** The main objective of the course "Latin" is to teach students Latin terminology used in botany and zoology, open access to a free and conscious perception of biological nomenclature, which is an essential element in education of a full-fledged professional.

**Mathematical Methods in Biology.** The discipline introduces the students to the personal computer and teaches them to use it for solving problems associated with major disciplines. The discipline considers the structure of personal computers and operating systems; the basics of text and spreadsheet documents and statistical data analysis applications used to optimize them.

**Biophysics aquatic.** The discipline underlies general education and theoretical training of students. The course provides students with a wide knowledge of physics and biophysics fundamentals, studies the physical and physicochemical phenomena in biological objects, as well as fundamental processes forming the basis of wildlife.

The specifics of this course is determined by the need of studying the laws of physics that underlie any processes: physical characteristics and properties of the animal body (mechanical, thermal, electrical, magnetic, optical); effects produced on animals by a variety of external physical factors (light, sound, ultrasound, infrasound temperature, electric and magnetic fields, etc.), the ability of animals to perceive and respond to these factors.

**Aquatic microbiology.** The discipline examines the role microorganisms play in enhancing water quality of ponds and integrated industrial fish farms; aquatic feed and microbial bio indicators used in aquatic ecosystems to reduce pathogenic microflora pollution and assess their health status.

**Fundamentals of fishery protection.** The discipline studies protection of aquatic resources, including fish and their habitats, legislative and regulatory framework and the use of fish resources; methods for determining violations in this area and ways to address the issues associated with the use of fish resources.

**Bioresources of hydrosphere and their use.** The discipline studies the amount, structure and localization of biological resources in hydrosphere; the laws of their formation; the possibility and extent of their use and reproduction as well as possible ways of using aquatic resources for food, feed, medical, industrial and other purposes.

**Raw material of fishery.** It studies the resources of the World ocean and adjacent freshwater bodies that are or can potentially be used by mankind for food, food,, technical, medical and other purposes.

**Technical equipment in fish farming.** The discipline helps students acquire a theoretical base and practical skills in using qualified technological equipment of reproductive aquaculture systems; provides a general description of fish farming equipment; modes of operation; methods to calculate the amount of equipment required for specific production problems.

**Research methodology in fish farming.** The discipline examines methodology of planning, organizing and conducting various types of research to obtain new theoretical knowledge and put it to practice in fish farming. The discipline helps students grasp basic principles of selection and recruitment in aquaculture facilities; basic methods of staging scientific experiments in pond fish farms as well as processing, systematization and generalization methods of research results and their patenting; procedures of drafting research reports.

**Acclimatization of hydrobionts.** Important discipline for professional training Masters in «Water Bioresources» and personnel for scientific work to restore biological productivity of waters. The challenge of course is to train future professionals clearly identify the need for acclimatization work on certain types of aquatic organisms; consider all possible risks associated with the relocation of new species in the pond for them, correctly choose items for acclimatization, given their economic value and environmental safety; avoid concomitant entering dangerous to native fauna of biological material; evaluate the effectiveness of the operations and their profitability.

**Pedagogics.** Generates future specialists professional (general pedagogical) knowledge and skills that are in knowledge about the nature of learning, education and training, the main directions and principles, methods and forms of education and training, the principles of forming the content of education and training; approaches to evaluating the success of the training, skills characterize the organization of educational and training process.

**Foundations of aquarium study.** It promotes the study of water as a living habitat of biological objects. Directions of use is research of biology, ecology, animals and plants, their reproduction, nutrition and behavior. Many species of aquatic organisms are objects of study of the impact of toxic chemical and biological substances from the environment.

**Fundamentals of animal husbandry.** The discipline helps students master the basics of anatomy, physiology, breeding, feeding and housing of farm animals; basic production processes in cattle, horse, pig, rabbit breeding, beekeeping and fish farming.

**Fishery laws.** The discipline studies biological resources of World ocean; the possibility and extent of their use and reproduction as well as possible ways of using aquatic resources for food, feed, medical, industrial and other purposes.



**Bachelor**  
**in specialty "TECHNOLOGY OF PRODUCTION AND PROCESSING**  
**OF LIVESTOCK PRODUCTS"**  
**field of knowledge "Agricultural science and food"**

Form of Training:	Licensed number of persons:
– Full-time	125
– Part-time	60
Duration of Training	4 years
Credits ECTS	240
Language of Teaching	Ukrainian, English
Qualification	Livestock products production and processing technologist

**Concept of training**

Animal production is an important sector of agriculture. Its level of development defines how well the market demand in high-calorie food such as meat, dairy products, eggs etc, is met. Animal production provides raw materials for the food and light industries (meat, milk, leather, wool, wax, feathers, etc.) as well as for production of some drugs and medicines. It is closely linked with crop farming, for which it supplies organic fertilizers. The structure of animal production includes cattle, pigs, poultry and sheep husbandry. Equally important are horse-, bee breeding, pond fish farming, sericulture, etc.

**Practical training**

In training of future professionals the department closely interacts and cooperates with educational and research facilities of the University VP NUBiP of Ukraine "Agronomic Research Station", "O. Muzychenko Velykosnitynske NDH", "NDH Vorzel" and the number of Ukrainian front-edge agricultural enterprises.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of Graduates**

Upon successful completion of the Bachelor level studies the specialists can choose to work either in University's educational and research farms or at agricultural enterprises of different ownership.



**Bachelor`s Program and Curriculum in Specialty  
«Technology of production and processing of livestock products»**

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Chemistry	1, 2	240	8
2	Zoology	1	180	6
3	Introduction to core professional course	1	150	5
4	Morphology of agricultural animals	1, 2	240	8
5	Physiology of agricultural animals	2, 3	270	9
6	Biochemistry in animal husbandry	3	120	4
7	Genetics of animals	3	120	4
8	Mechanization of production processes in animal husbandry	3	120	4
9	Animal nutrition and feed technology	4, 5	240	8
10	Animal hygiene	4, 5	240	8
11	Animal breeding	4, 5	240	8
12	Technology of rabbit breeding and animal farming	5	180	6
13	Technology of poultry production	6	210	7
14	Technology of beekeeping	6	180	6
15	Technology of goats production	6	180	6
16	Technology of milk and beef production	7, 8	210	7
17	Technology of pig production	7, 8	240	8
18	Technology of sheep production	7	180	6
19	Horse husbandry	7	180	6
20	Technology of processing livestock products	8	180	6
Total for standard part			3900	130
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	The history of Ukrainian statehood	1	90	3
2	Ethnoculturology	1	90	3
3	Philosophy	3	120	4
4	Ukrainian language (for professionals)	1	120	4
5	Foreign language	1, 2	150	5
6	Physical education	1, 2, 3, 4	120	4
7	Life and work safetyi	4	120	4
8	Personality's legal awareness	2	90	3
Total (Disciplines offered by University)			900	30
2.2. Disciplines offered by students				
1	Applied mathematics	1	90	3
2	Biophysics in animal husbandry	2	120	4
3	Microbiology in animal husbandry	3	120	4
4	Forage production	3	120	4
5	Pedagogics	4	90	3
6	Research methodology	4	120	4
7	Ecology in animal husbandry	4	120	4
8	Biotechnology in animal husbandry	5, 6	210	7
9	Fishing	5	120	4
10	Principles of veterinary medicine	7	90	3
11	Meat stockbreeding	7	120	4
12	Economics of animal	8	120	4
13	Technology of slaughter products	8	90	3
14	Legal regulation in livestock	6	90	3
Total (Disciplines offered by students)			1620	54
Total for elective part			2520	84

3. OTHER TYPES OF TRAINING				
1	Military training course	5, 6	540	18
2	Academic Practice	2, 4	480	16
4	Production Practice	6	240	8
State Attestation			60	2
Total for Specialty (without Military training course)			7200	240

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Chemistry.** The discipline studies the basic laws of chemistry and chemical properties of nutrients and their most important compounds, characteristics of chemical processes that accompany the production and processing of animal products. Future specialists learn modern concepts of organic chemistry that allow them to understand the structure of the tissues of animals and chemical processes in living systems. The discipline biochemical processes in living organisms, and biochemical methods which are used to determine the biochemical parameters that characterize the physiological state of the body and the pathology.

**Zoology.** It is a fundamental base of knowledge about animals and considers the animal world from the simplest to the chordate animals. It studies morphology and anatomy of animals, their physiology and ecology, taxonomy and geographic distribution, the place and role of animals in ecosystems and agrocenoses. Special attention given to groups and species of animals which are the most important in practical terms for agriculture, representatives of the local fauna.

**Introduction to core professional course.** The objective of this discipline is to provide future professionals with necessary knowledge about structure of educational institutions and educational system in the country; teach them the concepts of development on which the leading universities in Europe and across the world base their activity; modern technologies of milk, beef, pork, sheep and goat production, beekeeping, horse breeding, poultry, rabbits and fur farming.

**Morphology of agricultural animals.** This is a general biological discipline that studies the domestic animal and poultry anatomy, and is basic in preparation of the animal product production and processing technologists. After having studied the morphology of farm animals the students acquire the foundations of knowledge about domestic animal anatomy from perspective of their species, breed and age.

**Physiology of agricultural animals.** The discipline provides students with theoretical knowledge about basic physiological processes in the farm animals' body: circulation, digestion, respiration, metabolism and energy exchange, reproduction, excretion, lactation. It introduces the future professionals to neurohumoral regulatory mechanisms of animals. Special attention is paid to physiology of muscles and nerves in the central nervous system, higher nervous activity and analyzers (senses).

**Biochemistry in animal husbandry.** There is a basic discipline that provides the basic concepts on proteins, lipids, carbohydrates, minerals, vitamins, enzymes, hormones, their biological roles in the body and has important practical value. It is an objective basis for modern animal husbandry and other related industries. Mastering of knowledge of biochemistry allows the specialist to consciously understand different biotechnological processes for production and processing of livestock products.

**Genetics in animal husbandry.** The discipline studies cytological and molecular basis of heredity and variation; structure and function of genes; genetics of ontogeny and populations. Genetics is necessary for planning of domestic animals' breeding and

enables the professionals to understand the nature of biodiversity; prevention of hereditary diseases and abnormalities in farm animals. Application of genetic techniques makes it possible to predict manifestations of breeding traits in animal phenotype.

**Mechanization of production processes in animal husbandry.** The objective of this discipline is to help students acquire knowledge and skills enabling them to substantiate mechanized processes in animal product production enterprises. The discipline highlights the main provisions of zootechnical requirements for the performance of mechanization processes in animal husbandry; operating principles and process control over animal production machinery and equipment; economic evaluation of machinery and assemblies.

**Animal nutrition and feed technology.** The discipline is aimed at fostering in students the knowledge, abilities and skills in scientifically substantiated animal feeding, storage and rational use of feeds. The students study biology of individual species and sex-age groups of animals, the role played by nutrients in the functions of living organism; organization of full-value animal feeding based on detailed rules, rational methods, preparation of forages with regard to environmental and economic conditions and animal welfare.

**Animal hygiene.** The discipline helps students to get better knowledge about the science of protecting and preserving animal health; it studies sanitary and veterinary-sanitary requirements for environmental factors and livestock buildings; considers the influence of microclimate and quality of feed, water and soil on animal health and productivity; effective ways of preventing the negative impact of harmful substances on animals; regulations and sanitary requirements for housing, feeding and maintenance of various farm animal types and sex-age groups, livestock buildings and equipment for animals.

**Animal breeding.** The objective of this discipline is to teach students the origins and evolution of agricultural animals; main features of breeds; patterns of individual agricultural animal breeds and species; exterior, interior, agricultural productivity of animals and factors causing them; selection of agricultural animals; evaluation and selection of animals by phenotype, progeny, origins; organizational aspects of agricultural animal selection; methods and forms of agricultural animal selection.

**Technology of rabbit breeding and animal farming.** The objective of this discipline is to provide students with a system of theoretical knowledge and practical skills in breeding, feeding, maintenance of rabbits and production of rabbit products: meat, pelts, down.

**Technology of poultry production.** The discipline studies breeds and cross breeds of various poultry species; specifics of breeding and incubation of chicken, duck, geese, turkey, quail, guinea fowl and ostrich eggs; modern production and processing of poultry and eggs, and fatty liver of ducks and geese.

**Technology of beekeeping.** The discipline reveals for students the basic provisions of bee colonies' productivity through introduction of technological keeping and breeding methods based on a high genetic potential; creating optimal conditions for the growth and development of bees; compliance with sanitary and hygienic norms and rules; advanced technologies of producing honey, wax, pollen (bee pollen), propolis (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.

**Technology of goats production.** The discipline is part of a special technology and is taught to provide students with a system of theoretical knowledge and practical skills in breeding, biotechnology reproduction, feeding, maintenance of goats and production of goats products.

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**Technology of milk and beef production.** The discipline introduces students to biological characteristics, growth parameters, reproduction and breeding of cattle. Students are taught the basics of modeling processes in cattle breeding; technologies of breeding replacement calves and milk production at conventional and specialized farms with extensive use of energy saving technologies.

**Technology of pig production.** The discipline emphasizes the economic importance and prospects of pig breeding; biological and nutritional value of pork; swine origins; biological characteristics of wild and domestic pigs; breeding factors; stages of creating modern breeds; different breeds of pigs; breeding work in farms of different categories; maintenance and feeding of pregnant and lactating females; biological features and critical periods in raising pig lings; substantiation of piglet weaning schedule; technology of pig farming; raising replacement calves; fattening pigs.

**Technology of sheep production.** The discipline is part of a special technology and is taught to provide students with a system of theoretical knowledge and practical skills in breeding, biotechnology reproduction, feeding, maintenance of sheep and production of sheep products.

**Horse husbandry.** The discipline considers the study of the basic ways of horse husbandry development in Ukraine, biological characteristics of horses which are connected with their maintenance, feeding, reproduction, behavior, adaptation to the conditions of existence and utilizes; origin of horses and their wild relatives, study of common origin and characteristics of species differentiation; creating the conditions and methods of improvement and improvement of breeds of horses for various purposes; the main areas of productivity and development of the industry in the short and long term (state or private horse breeding).

**Technology of processing livestock products.** The discipline provides knowledge about processes of manufacturing a wide range of high-quality animal products; regulatory requirements for quality of raw materials and manufactured products made from it based on existing technologies and manuals at processing plants; assessment of their quality according to requirements set forth in normative documentation.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by university**

Annotations of disciplines "History of Ukrainian Statehood", "Ethnocultural", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language (English, German, French, Spanish)", "Physical Training", "Labour and Life Safety", "Legal Personal Culture" see Section 2.1.

### **2.2. Disciplines offered by students**

**Applied mathematics.** The aim of the discipline is to form skills of logic and algorithmic thinking. It is necessary to learn the foundations of mathematical tools to solve theoretical and practical economic problems; to develop the ability to seek, analyse and apply scientific literature and other information sources and resources on higher mathematics; to develop skills of mathematical research, to interpret specific economic problems in mathematical language with the following construction of a mathematical model; the ability to explore mathematical models of various economic processes; to master methods of processing and analyzing results which are obtained while researching mathematical models.

**Biophysics in animal husbandry.** The discipline provides students with a deep knowledge of physics and biophysics fundamentals; it studies the physical and physicochemical phenomena in biological objects; the fundamental processes in wildlife. The specifics of the course are determined by the need to study the laws of physics that underlie any process, physical characteristics and properties (mechanical, thermal, electrical, magnetic, optical) of animals, effects produced on animals by a variety of external physical factors (light, sound, ultrasound, infrasound temperature, electric and magnetic fields, etc.), the ability of animals to perceive and respond to these factors.

**Microbiology in animal husbandry.** The objective of this discipline is introduce students to classification, nomenclature, morphology, physiology and genetics of microorganisms and determine their role in the cycling of matter in nature; study the effect produced on microorganisms by environmental factors; analyze microflora of air, water, soil, food, foodstuff, agricultural and industrial raw materials of plant and animal origin.

**Forage production.** The discipline covers a science-based system of organizational, economic, biological, technological and economic activities of production, harvesting and forage preserving.

**Pedagogics.** Generates future specialists professional (general pedagogical) knowledge and skills that are in knowledge about the nature of learning, education and training, the main directions and principles, methods and forms of education and training, the principles of forming the content of education and training; approaches to evaluating the success of the training, skills characterize the organization of educational and training process.

**Research methodology.** The discipline studies basic principles of research methodology in animal production; modern classification and methods of zootechnical experiments; selection methods; systematization and analysis of scientific information and research; rules applicable to writing scientific work and protection of intellectual property rights.

**Ecology in livestock.** It studies the relationships of organisms (individuals, animals populations and other biomes.) with each other and with the environment, the general laws of functioning of ecosystems, including those under the influence of anthropogenic factors and is the basis for safe livestock production.

**Biotechnology in animal husbandry.** The discipline studies the possible practical applications of basic biology achievements and methods of receiving biologically active substances to improve reproductive function in animals. The discipline also teaches future professionals how to intensify the selection process by receiving and transferring embryos from the best breeding animals.

**Fishing.** The discipline studies the organizational structure of pond fisheries; their arrangement; biology of major cultivation facilities in pond fishery aquaculture; the impact of environmental factors on aquatic activity; the basics of selection and breeding in fish farming; methods and measures applied to intensify pond fishery; fish reproduction techniques; basic technological processes in warm- and cold-water aquaculture; fish diseases and basic health care and prevention activities in fish farming.

**Principles of veterinary medicine.** Provides mastering the basics of the anatomical structure of farm animals, classification and specifics of the diseases spread, methods and ways of prevention and treatment of farm animals diseases.

**Meat stockbreeding.** It provides for students forming of modern deep knowledge by Meat stockbreeding questions in market conditions. The program provides studying of cattle biology, livestock systems of sustentation, feeding of meat breeds cattle, stimulants of animal productivity, production of ecologically pure beef, slaughter and processing of cattle, meat productivity of cattle management.

**Economics of animal.** The discipline provides students with knowledge about the laws underlying development of social production, its mechanisms and the effective use of

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economic laws for better satisfaction of consumers' physical, social and economic needs. The discipline sets forth basic principles of economic development; basics of market economy; economic growth and socio-economic progress; the world economy and international economic relations.

**Technology of slaughter products.** The discipline studies the issues related to quality and technological characteristics of meat productivity of farm animals as raw materials for processing industry; delivery of slaughtered animals to meat processing factories under existing systems and normative documentation; technology and slaughter products' processing and storage; evaluation of meat quality indicators for its technological and culinary properties and methods of preserving meat and meat products.

**Legal regulation of livestock.** It studies general characteristics of legal regulation of livestock; breeding regulation; beekeeping regulation; regulation of dairy production and selling; regulation of fish farming and fishery; legal support of quality and safety of agricultural products; regulation of production and sale of fur and leather products; regulation of production, procurement, getting, preserving, transport and sale of poultry eggs; regulation of silk; tools of state regulation of the livestock industry in Ukraine.



## **2.5. EDUCATION AND RESEARCH INSTITUTE OF FORESTRY AND GARDEN-PARK MANAGEMENT**

**Director** - Doctor of Agricultural Sciences, professor **Petro Ivanovych Lakyda**

Tel: (+38044) 527-85-28 E-mail: [lakyda@nubip.edu.ua](mailto:lakyda@nubip.edu.ua)

Location: educational building №1, room 119

The INSTITUTE organizes and coordinates the educational process of bachelors in the following specialties:

### ***205 Forestry management***

Graduating departments:

Forest biology and game management science:

Tel: (+38044) 527-82-38 E-mail: [maksimchukn@bigmir.net](mailto:maksimchukn@bigmir.net)

Head of the department - Candidate of Agricultural Sciences, associated professor Natalia Pyzrina

Silviculture:

Tel.: (+38044) 527-82-82 E-mail: [levchenko@nubip.edu.ua](mailto:levchenko@nubip.edu.ua)

Head of the department - Doctor of Agricultural Sciences, professor Anatolii Bondar

Forest management:

Tel.: (+38044) 527-83-70 E-mail: [domashovets@nubip.edu.ua](mailto:domashovets@nubip.edu.ua)

Head of the department - Candidate of Agricultural Sciences, associated professor Galina Domashovec

Forest inventory and forest regulation:

Tel.: (+38044) 527-85-23 E-mail: [aagirs@ukr.net](mailto:aagirs@ukr.net)

Head of the department - Doctor of Agricultural Sciences, professor Oleksandr Hirs

Forest Restoration and Meliorations:

Tel.: (+38044) 527-87-47 E-mail: [fmbrovko@ukr.net](mailto:fmbrovko@ukr.net)

Head of the department - Candidate of Agricultural Sciences, professor Viktor Maurer

Forest Operations:

Tel.: (+38044) 527-82-80 E-mail: [gribvm@ukr.net](mailto:gribvm@ukr.net)

Head of the department - Doctor of Agricultural Sciences, professor Vladimir Grub

Wood Processing Technologies:

Tel.: (+38044) 527-81-67 E-mail: [opinchevska@gmail.com](mailto:opinchevska@gmail.com)

Head of the department - Doctor of Technical Sciences, professor Pinchevska Olena

### **206 Park and Gardening Management**

Graduating departments:

Landscape architecture and landscape construction:

Tel.: (+38044) 527-82-96 E-mail: [stplyt@yandex.ru](mailto:stplyt@yandex.ru)

Head of the department - Candidate of Biological Sciences, associated professor  
Irina Sidorenko

Landscape gardening and floral design/phytodesign:

Tel.: (+38044) 258-47-27, E-mail: [sp\\_fito\\_pzs@ukr.net](mailto:sp_fito_pzs@ukr.net)

Head of the department - Doctor of Biological Sciences, professor Sergei Popovych

Dendrology and Forest Tree Breeding:

Tel.: (+38044) 527-85-18 E-mail: [dendrology\\_nubip@ukr.net](mailto:dendrology_nubip@ukr.net)

Head of the department - Candidate of Agricultural Sciences, associated professor  
Yuri Marchyk

Botany

Tel.: (+38044) 527-82-98 E-mail: [botaniki@bigmir.net](mailto:botaniki@bigmir.net)

Head of the department - Doctor of Biology Sciences, professor Yakubenko Boris

**Bachelor**  
**in specialty "FORESTRY MANAGEMENT"**  
**field of knowledge "Agricultural science and food"**

Form of study	Limit of licensed number of students
Full-time	125
Part-time	140
Learning time	4 years
Credits	240 ECTS
Language of teaching	Ukrainian
Qualification of graduates	Bachelor of Forestry Management

**Concept of training**

Forestry management is the sector of the economy that deals with research, account and reproduction of forests, protecting them from fires, pests and diseases, reforestation and afforestation, forest regulation, increasing of forest productivity, aesthetic, sanitary and hygienic conditions of plantings. It is a very important component of the economy of Ukraine.

Training of experts has following main objectives: improving environmental education, public awareness on forestry management and removal of social stress regarding the methods and means of forestry management by informing the public about close to nature forestry, multiple use of forest resources, public involvement in solving forestry problems and consultation with local communities about decisions that have significant ecological, recreational and economic importance and can cause significant social resonance, training in the organization of forest and landscape management on the principles of close to silviculture, providing multifunctional forestry and landscape management and efficient, continuous and sustainable, multi-use forest resources, taking into account landscape and watershed principles of forest management, conservation of natural biodiversity at all levels - from the genetic one to the species, ecosystem and landscape, providing continuous, high-efficient implementation of plantings environmental, economic and social functions at local, national and global levels.

**Practical training**

The bases of practical training are educational, research, training and manufacturing laboratories of the Institute Departments and IP NUBiP Ukraine "Boyarka Forest Research Station," Trainig and Research Nursery of the Reforestation and Afforestation Department, Botanical Garden of NULES of Ukraine.

**Proposed Topics for Bachelor theses**

1. Peculiarities of thinning and selection group cutting in pine stands of forestry enterprises.
2. Natural regeneration of Scotch pine.
3. Condition of forest fire protection in forestry enterprises and ways of its improvement.
4. The analysis of methods for determining the stock of mature spruce stands of forestry enterprise.

5. Harmful insects in the young pine forests in forestry enterprises and their forest values.
6. The analysis of the current condition of hunting fauna and ways to optimize the number of hunting lands in forestry enterprises.
7. The experience of plant growing material in a forest enterprise.
8. Current state and erosion control properties of protective forest plantation in the forestry enterprises.
9. Economic features of management activities in the forest enterprise involving private structures.
10. Peculiarities of reproduction of the German medlar tree using green cuttings.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

### **Employment of Graduates**

After receiving a Bachelor degree graduates can be employed in forestry enterprises of the State Agency of forest resources, communal enterprises of gardening or landscaping, state and private game management farms and forestry research institutions.

### Bachelor's Program and Curriculum in Specialty «Forestry Management»

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Descriptive geometry	1	120	4,0
2	Higher mathematics	1	120	4,0
3	Chemistry	1	150	5,0
4	Botany	1,2	180	6,0
5	Physics	2	150	5,0
6	IT Innovations	2	150	5,0
7	Geodesy	2	150	5,0
8	Non-timber forest resources	5	120	4,0
9	Fundamentals of Ecology and Nature Protection	2	120	4,0
10	Forest inventory	5,6	240	8,0
11	Dendrology I	3,4	240	8,0
12	Plant physiology	3	120	4,0
13	Forest zoology	3	120	4,0
14	Forest pedology	3,4	210	7,0
15	Biometry	4	120	4,0
16	Forest breeding and genetics	4	120	4,0
17	Forest phytopathology	5	120	4,0
18	Silvics	5	270	9,0
19	Economic theory	5	90	3,0
20	Forest entomology	6	120	4,0
21	Urban landscaping	6	90	3,0
22	Economics of forestry	7	120	4,0
23	Politology	8	120	4,0
24	Natural reserves	8	120	4,0
25	Meteorology	1	90	3,0
Total for standard part			3570	119,0
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukrainian Statehood	1	90	3,0
2	Cultural ethnic	2	90	3,0
3	Philosophy	3	120	4,0
4	Professionally-oriented Ukrainian language	2	120	4,0
5	Foreign language	1,2	150	5,0
6	Physical education **	1-4	120	4,0
7	Labour and Life Safety	4	120	4,0
8	Legal Personal Culture	5	90	3,0
9	Principles of professional training	1	120	4,0
Total (Disciplines offered by University)			1020	34,0
2.2. Disciplines offered by students				
2.2.1. Specialization «Forestry»				
1	Technical mechanics	3	90	3,0
2	Mechanization of forestry work	3,4	180	6,0
3	Remote sensing	3	90	3,0
4	Fundamentals of hydrotechnical reclamation	5	90	3,0
5	Forestry fire science	6	90	3,0
6	Forestry commodity	6	90	3,0
7	Forest plants	5-7	330	11,0
8	Forest melioration	7	150	5,0
9	Accounting in Forestry	7	90	3,0
10	Forest Management	7,8	180	6,0
11	Timber transportation	7	90	3,0

12	Organization of Forestry Production	8	180	6,0
13	Fundamentals of forest exploitation	8	150	5,0
<b>Total for Specialization</b>			<b>1800</b>	<b>60,0</b>
<b>Total (Disciplines offered by students)</b>			<b>1800</b>	<b>60,0</b>
<b>Total for elective part</b>			<b>2820</b>	<b>94,0</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training		<b>870</b>	<b>29</b>
2	Academic Practice		<b>600</b>	<b>20,0</b>
3	Production Practice		<b>90</b>	<b>3,0</b>
4	Preparation and defense of undergraduate final work		<b>90</b>	<b>3,0</b>
5	State attestation		<b>30</b>	<b>1,0</b>
<b>Total</b>			<b>810</b>	<b>27,0</b>
<b>Total for Specialty</b>			<b>7200</b>	<b>240,0</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Descriptive geometry.** Orthogonal projection. Axonometry. Projection drawings. Form, sections and cross sections. Sketches and working drawings. Elements of structural connections. Assembly drawing. Detailing.

**Higher mathematics.** Elements of analytic geometry. Linear Algebra. Calculus. Differential calculus of functions of one variable. Integration. Functions of several variables. Differential equations and series.

**Chemistry.** Theoretical foundations of Chemistry. Organic Chemistry. Stoichiometric laws. Structure of atoms, kinetics of chemical reactions. Solutions. Oxidation-reduction reactions. Electrolysis. Corrosion of metals, features of main chemistry elements. Classification of organic compounds. Classification of cations and anions. Action of group reagents, features of the division into groups. Reactions. The analysis of unknown substances. Methods for determining the concentration of solutions. Fundamentals of neutralization, permanganometry. Determination of related substances in solution.

**Botany.** Structure, activity and plant diversity. The lower and higher plants, their origin, phylogenetic relationships, the value for the national and forest management. Morphology and productivity of forest biocenosis, their sustainable use and conservation.

**Physics.** Mechanics, kinematics and dynamics of point and solid. Molecular physics and thermodynamics. Electrostatics. An electric current and electromagnetism. Oscillations and waves. Optics. Elements of quantum mechanics. The structure of the nucleus. Radioactivity. Effect of radiation on biological objects.

**Informatics.** Hardware and software of computers. Personal computers. The system software. Programming languages. Algorithmic and programming tasks. Solving problems on PC.

**Geodesy.** The general concept of geodesy, orientation of lines on the ground; coordinates in geodesy, making measurements with theodolite, ways to determine the area of land; geometric leveling, engineering design for profile, leveling the surface, terrain, topographic map, range maps, solving a topographic map; basics of aerial photography and interpretation of aerial photographs, topographic and geodesy works in forest inventory.



**Non-timber forest resources.** The course examines the methods of rational use of non-wood forest resources, ways to improve the quality and productivity of grasslands, harvest methods, technology, collecting fodder, wild fruits, berries, mushrooms, medicinal plants, birch juice. Covers the basics of beekeeping.

**Nature reserve management.** The concepts, the task of environmental education, basic directions, forms and methods of natural-guarding propaganda based on natural protected areas, ecological trail as a method of environmental education, training and recreation, environmental movement, religion and nature protection.

**Forest inventory.** Inventory of wood and wood products. Forestry-taksatsiyni signs and taksatsiyna structure stands. Methods for determining stock and wood increment. Inventory forests. Basic approaches to non-timber forest resources inventory.

**Dendrology.** Ecology of plants. Type, intraspecific systematic unity. Types of habitats. Life forms and cycles. Phylogenetic system. Dendroflora of Ukraine. Introduction of plants. Phytocenology. Forest formations and associations.

**Plant physiology.** Physiology of plant cell. Water exchange of plants. Photosynthesis. Respiration. Mineral nutrition. Growth and development of plants. Ripening of fruits and seeds. Adaptation of plants and their resistance.

**Forest zoology.** Species composition and peculiarities of forest fauna spreading, results of people's impact on forest fauna, examples of positive and negative effects of mammals and birds on forest environment, understanding the causes of animals extinction and methods for their preservation, the foundation of legislation to protect wildlife.

**Forest soil science.** Soil formation processes. Mineral and organic parts of the soil. The pattern of distribution of soils in Ukraine. Soil properties according to vegetation.

**Biometrics.** Fundamentals of the theory of probability. Numerical characteristics and patterns of distribution of a random variable. Statistics. The simplest model analysis of variance. Correlation analysis. Selective methods as a basis for obtaining the forest information.

**Forest selection.** Methods of selection. Selective inventory of plants. Selection of main forest species.

**Forest Phytopathology.** Pathogens of seedlings, plants, seeds, pine needles, leaves and symptoms of their manifestation. Root and stem rot. Eatable and poisonous mushrooms. Methods and ways of forest protection. Technology of the forest protection.

**Silvics.** Silvics as a theory about the forest nature. Biology, morphology, typology and ecology of the forest. Reproduction, development and growth. Practical silviculture. Systems and methods of cuttings. Intermediate cuttings. Increase of forest productivity.

**Economic theory.** Examining the patterns of social production, mechanism of action and effective utilization of economic laws people to best meet their physical, social and economic needs. The general principles of economic development; The general principles of the market; of market economy; economic growth and social and economic progress; formation and development of socio-economic systems; world economy and international economic relations.

**Forest entomology.** Biology, taxonomy and classification of insects. Environmental factors and trophic relationships. Methods of plantations protection. Needles and leaf-eating, stem pests. Seeds, nurseries, young plantations and wood pests.

**Urban landscaping.** The role of vegetation in creating the environment. Design of landscape. The technology of landscape construction. Landscaping villages and towns. List of woody plants for landscaping.

**Economics of forestry.** The Law of demand, offers, cost and competition. Production and resource potential under conditions of a market economic system. Formation of the gross national product in the state regulation of the economy development.

**Basics of labor protection.** Legislation on safety and security protection. Principles of occupational health and industrial sanitary. Providing first medical care. Ensuring healthy working conditions in forestry

**Politics.** Laws, structure and functions of political science. Power and power relations. The political system of society, the role and place in her state. Political consciousness and political culture. Politics and national relations. National and state development of Ukraine.

**General ecology.** Theoretical foundations of ecology. The doctrine of the biosphere. Ecosystem and biogeocoenosis. Trophic chains. Pollution. Forestry production and its environmental impact. Cost-effectiveness of environmental measures.

**Meteorology.** The influence of meteorological factors on the growth and development of plants, taking them into account during forest operations. Influence of wood on some meteorological parameters and climatic regime of terrain.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines "History of Ukrainian Statehood", "Ethnocultural", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language (English, German, French, Spanish)", "Physical Training", "Labour and Life Safety", "Legal Personal Culture" see Section 2.1.

**Principles of professional training.** Discipline acquaints students - especially freshmen studying at the university, with the rights and duties of university students, history of the Forestry faculty of the National University of Life and Environmental Sciences of Ukraine, internal rules of the institution, organization of educational process, forms of training according to the curriculum, the hygiene of mental work and general rules of the work with a book and in the library. Emphasis is placed on the study of traditional features of separate discipline groups, which are taught at the faculty.

### **2.2. Disciplines offered by students**

#### **2.2.1. Specialization "Forestry"**

**Technical mechanics.** Statics, kinematics, dynamics. Strength and deformation of wood under different types of loading. Elements of lifting equipment.

**Mechanization of forestry work.** Structure of different machines used in forestry such as tree planters and others. Machines for the protection and preservation of the forest. The mechanization of thinning the forest. Information about machine and tractor units.

**Earth remote sensing.** Methods of remote sensing based on registration and further interpretation of the reflected solar radiation from the surface of the soil, vegetation, water and other facilities. Transporting (waftage) of recording device, into the air-Earth space allows you to get a much wider coverage area than ground-based research methods. The quality and applicability of the data (during remote sensing) are influenced by spectral range of shooting, spatial accuracy, radiometric accuracy, spatial coverage, efficiency and repeatability of shooting, and the cost of data .

**Basics of hydrotechnical reclamation.** The theoretical bases of hydrotechnical reclamation of forest lands, irrigation of forest nurseries and plantations. Sources of irrigation, salinity and measures to control it. D rainage by means of open channels and

horizontal drainage system. Use of moisturizing drainage-systems and special drying methods.

**Forestry fire science.** Forest pirology examines the basic theory of combustion, fire hazard depending on the nature of the forest and weather conditions and classifies forest fires. We study fire prevention, the role of communication in operational fire detection techniques and tactics of fighting forest fires, estimation of losses from fires. Basic theory of combustion. Classification of forest fires. Preventive measures. Technical ways and tactics of fighting forest fires. Estimation of the damage.

**Forestry commodity.** The structure, composition, physical and mechanical properties of wood, how to modify them, defects of wood, methods of drying and storage timber. Properties production logging, sawmills, planing, production of special types: standard dimensions, tolerances, allowances, sorting, measurement, recording, marking.

**Forest plants.** Significance and organization of forest plant nurseries. Peculiarities of plant material cultivation. Planting seeds and seedlings and their maintenance. Cultivation of basic valuable tree species. Technology of artificial forest plantations.

**Forest planting.** The questions of lisonasinnoyi case of forest nurseries, especially the growing of planting material, silvicultural zoning, development and cultivation of major lisotvirnyh and trees. Lisonasinnyeva case, forest nurseries, zoning and silvicultural technology of artificial forest plantations.

**Forest reclamation.** Major forestry and agroforestry principles that determine the technology of establishment and cultivation of protective forest plantations. Soil erosion and the fight against it. Agrotechnical peculiarities of creation and cultivation of agroforestry plantations on eroded lands. Sands, their consolidation and economic development.

**Accounting in Forestry.** Discipline studies directly accounting records as a management function. The main elements studied are: a system of accounts, forms of record keeping, rendering of accounts, and a rule of double entry accounting as a basic record rule. It also deals with the audit.

**Forest management.** Forest management as a system of measures for forest inventory and forest management. Economic foundations of forest management in Ukraine. The division into categories of protection forests. The economic organization of forestry. Maturity of forest plantations. The organization of forest management. Inventory of forest resources. State registration of forests and state forest cadaster. Designing forest management during such types of work as the main timber harvesting, logging, reforestation and afforestation, etc. Designing forest management measures and their economic efficiency. Forest management techniques and their classification.

**Timber transportation.** Discipline includes the following major sections: Technology of logging and harvesting, organization of transport operations in forestry; automobile, railway and water transport.

**Organization of Forestry Production.** Organization of production as an applied economic discipline. Forestry enterprises. Organization of work. Organization of the use of means of production. Organization of forest management, forest protection, reforestation, forestry activities. Effective planning of industrial activity. Financial support of production. Efficient analysis of industrial activity.

**Basics of forest exploitation.** Cutting Fund. The main phases of forest exploitation. Organization of logging operations. Basics of wood processing theory. Methods for moving wood. Performance of cutting and wood processing machines and mechanisms.

**Bachelor**  
**in specialty "PARK AND GARDENING MANAGEMENT"**  
**field of knowledge "Agricultural science and food"**

Form of study	Limit of licensed number of students
Full-time	100
Part-time	60
Learning time	4 years
Credits	240 ECTS
Language of teaching	Ukrainian
Qualification of graduates	Bachelor of Forestry and Garden-Park Management

**Concept of training**

Park and gardening management is the sector of the economy that deals with research, account and reproduction of forests, parks, gardens and public parks, protecting them from fires, pests and diseases, reforestation and afforestation, aesthetic, sanitary and hygienic conditions of plantings. It is a very important component of the economy of Ukraine.

Training of experts has following main objectives: improving environmental education, public awareness on park and gardening management and removal of social stress regarding the methods and means of forestry management by informing the public about close to nature forestry, public involvement in solving forestry problems and consultation with local communities about decisions that have significant ecological, recreational and economic importance and can cause significant social resonance, training in the organization of forest and landscape management on the principles of close to silviculture, providing multifunctional forestry and landscape management and efficient, continuous and sustainable, multi-use forest resources, taking into account landscape and watershed principles of forest management, conservation of natural biodiversity at all levels - from the genetic one to the species, ecosystem and landscape, providing continuous, high-efficient implementation of plantings environmental, economic and social functions at local, national and global levels.

**Practical training**

The bases of practical training are educational, research, training and manufacturing laboratories of the Institute Departments, Trainig and Research Nursery of the Reforestation and Afforestation Department, Botanical Garden of NULES of Ukraine, MM Gryshko Central Botanical Garden, National Academy of Sciences of Ukraine; Fomin Botanical Garden; Corporation "Ukrzelenbud", CE "Kievzelenstroy" and regional trusts to maintain green spaces, regional and district communal enterprises of gardening.

**Proposed Topics for Bachelor theses**

1. Natural regeneration of Scotch pine.
2. Economic features of management activities in the forest enterprise involving private structures.

3. Project proposals concerning the reconstruction of green plantations in Kirovograd's park.
4. Project proposals with regard to the reconstruction of parks of landscape architecture memorial value.
5. Landscaping project of the school territory and kindergartens.
6. Dendrological evaluation of the existing assortment of gymnosperms and prospects to replenish the collection of decorative forms at the M.M. Gryshko National Botanic Garden.
7. Technological features of the forcing treatment of sorts Tulipa L. and Crocus L.
8. Peculiarities of reproduction of the German medlar tree using green cuttings.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

### **Employment of Graduates**

After receiving a Bachelor degree graduates can be employed in communal enterprises of gardening or landscaping, state and private game management farms and forestry research institutions.

### Bachelor's Program and Curriculum in Specialty "Park and Gardening Management"

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Descriptive geometry	1	120	4,0
2	Higher mathematics	1	120	4,0
3	Chemistry	1	150	5,0
4	Botany	1,2	240	8,0
5	Physics	2	150	5,0
6	IT Innovations	2	150	5,0
7	Geodesy	2	180	6,0
8	Sociology	2	90	3,0
9	General ecology	2	90	3,0
10	Park gardening establishment	7,8	240	8,0
11	Decorative dendrology	3,4	330	11,0
12	Plant physiology	3	120	4,0
13	Floriculture	4,5	210	7,0
14	Forest pedology	3,4	210	7,0
15	Biometry	4	120	4,0
16	Breeding and Genetics ornamental woody plants	4	180	6,0
17	Pests and pathogens of woody ornamentals	5	240	8,0
18	Lawns	6	120	4,0
19	Economic theory	5	90	3,0
20	Landscape Architecture	6,7	240	8,0
21	Urban gardening	6	120	4,0
22	Economics of garden-park management	7	150	5,0
23	Politology	8	90	3,0
24	Fundamentals of fine arts	1,2	180	6,0
25	Introduction and adaptation of decorative plants	6	120	4,0
Total for standard part			4050	135,0
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukrainian Statehood	1	90	3,0
2	Cultural ethnic	2	90	3,0
3	Philosophy	3	120	4,0
4	Professionally-oriented Ukrainian language	2	120	4,0
5	Foreign language	1,2	150	5,0
6	Physical education	1-4	120	4,0
7	Labour and Life Safety	4	120	4,0
8	Legal Personal Culture	5	90	3,0
9	Principles of professional training	1	120	4,0
Total (Disciplines offered by University)			1020	34,0
2.2. Disciplines offered by students				
2.2.1. Specialization «Garden-Park Management»				
1	Mechanization of GPM	3	120	4,0
2	Decorative breeding and Seed	5	120	4,0
3	Basics of city planning	4	90	3,0
4	Decoraitive Silvics	5	180	6,0
5	Inventory of garden-park management	6,7	180	6,0
6	Engineering equipment in GPM	8	150	5,0
7	Decorative plants in greenhouses	6	90	3,0
8	Fundamentals of afforestation	7	90	3,0
9	Organization of Garden-Park Management.	8	90	3,0
10	Urban ecology and phyto-melioration	7	90	3,0
11	Topiary art	6	150	5,0



12	Basics of composition	5	90	3,0
13	Natural reserves	8	90	3,0
14	IT Technologies	8	90	3,0
<b>Total (Disciplines offered by students)</b>			<b>1620</b>	<b>54,0</b>
<b>Total for elective part</b>			<b>2640</b>	<b>88,0</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training		<b>870</b>	<b>29</b>
2	Academic Practice		<b>300</b>	<b>10,0</b>
3	Production Practice		<b>90</b>	<b>3,0</b>
4	Preparation and defense of undergraduate final work		<b>90</b>	<b>3,0</b>
5	State attestation		<b>30</b>	<b>1,0</b>
<b>Total</b>			<b>510</b>	<b>17,0</b>
<b>Total for Specialty</b>			<b>7200</b>	<b>240,0</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Descriptive geometry.** Orthogonal projection. Axonometry. Projection drawings. Form, sections and cross sections. Sketches and working drawings. Elements of structural connections. Assembly drawing. Detailing.

**Higher mathematics.** Elements of analytic geometry. Linear Algebra. Calculus. Differential calculus of functions of one variable. Integration. Functions of several variables. Differential equations and series.

**Chemistry.** Theoretical foundations of Chemistry. Organic Chemistry. Stoichiometric laws. Structure of atoms, kinetics of chemical reactions. Solutions. Oxidation-reduction reactions. Electrolysis. Corrosion of metals, features of main chemistry elements. Classification of organic compounds. Classification of cations and anions. Action of group reagents, features of the division into groups. Reactions. The analysis of unknown substances. Methods for determining the concentration of solutions. Fundamentals of neutralization, permanganatometry. Determination of related substances in solution.

**Botany.** Structure, activity and plant diversity. The lower and higher plants, their origin, phylogenetic relationships, the value for the national and forest management. Morphology and productivity of forest biocenosis, their sustainable use and conservation.

**Informatics.** Hardware and software of computers. Personal computers. The system software. Programming languages. Algorithmic and programming tasks. Solving problems on PC.

**Geodesy.** The general concept of geodesy, orientation of lines on the ground; coordinates in geodesy, making measurements with theodolite, ways to determine the area of land; geometric leveling, engineering design for profile, leveling the surface, terrain, topographic map, range maps, solving a topographic map; basics of aerial photography and interpretation of aerial photographs, topographic and geodesy works in forest inventory.

**Sociology.** The social nature. Formation of human behavior in the workplace activity and his place in the motivation system and the means of social control. The role of staff members and a small group in achieving production.

**Nature reserve management.** The concepts, the task of environmental education, basic directions, forms and methods of natural-guarding propaganda based on natural protected areas, ecological trail as a method of environmental education, training and recreation, environmental movement, religion and nature protection.

**Landscape Construction.** Landscape construction is an important part of the overall complex urban planning and urban development. Includes a variety of range in complexity issues associated with design, construction, maintenance garden and park facilities, creation, formation and maintenance of an important component - ornamental plants. Landscape construction is a complex of measures providing for solving various problems of legal, crop, aesthetic, organizational, operational and commercial, economic, aimed at creating a garden and park facilities for various purposes.

**Dendrology.** Ecology of plants. Type, intraspecific systematic unity. Types of habitats. Life forms and cycles. Phylogenetic system. Dendroflora of Ukraine. Introduction of plants. Phytocenology. Forest formations and associations.

**Plant physiology.** Physiology of plant cell. Water exchange of plants. Photosynthesis. Respiration. Mineral nutrition. Growth and development of plants. Ripening of fruits and seeds. Adaptation of plants and their resistance.

**Forest soil science.** Soil formation processes. Mineral and organic parts of the soil. The pattern of distribution of soils in Ukraine. Soil properties according to vegetation.

**Floriculture.** Discipline "Floriculture" involves the study of biological and ecological features of the development, propagation and cultivation of flower-ornamental crops unprotected soil, mastering theoretical knowledge of the growth and development of annual, biennial, perennial flowers and ornamental plants that are used to create different types of flower beds, gain practical skills with their propagation and planting in flower beds, flower beds drafting and passing them on objects SPB. The second part of the course provides the study of technology of growing crops in greenhouses under conditions of industrial production.

**Biometrics.** Fundamentals of the theory of probability. Numerical characteristics and patterns of distribution of a random variable. Statistics. The simplest model analysis of variance. Correlation analysis. Selective methods as a basis for obtaining the forest information.

**Genetics.** Hybrid method. Cytological and molecular basis of heredity. Chromosomal and cytoplasmic heredity.

**Pests and pathogens of woody ornamentals.** The causative agent of seedlings, planting seeds, needles, leaves and symptoms of their display. Root and stem rot. House, edible and poisonous mushrooms. Methods and means for ornamentals. Technology protection forest park plantings. Biology, taxonomy and classification of insects. Environmental factors and trophic relationships. Methods and means of protecting the forest park plantings. Hvyoye- and leaf-eating, stem pests. Pests seeds, nurseries, young plantations and wood.

**Lawns.** The course deals with theoretical and practical aspects of the introduction of lawns, reveals in detail the classification of lawns, ecological and biological characteristics of lawn grass, methods of environmental assessment of lawn grasses and biological bases for selection of species for lawn. The discipline includes theoretical and practical principles of selection and seed production of basic types of lawn grasses in Ukraine and abroad, use of high-quality lawn grass seed.

**Economic theory.** Examining the patterns of social production, mechanism of action and effective utilization of economic laws people to best meet their physical, social and economic needs. The general principles of economic development; The general principles of the market; of market economy; economic growth and social and economic progress; formation and development of socio-economic systems; world economy and international economic relations.

**Landscape Architecture.** Within the discipline, the historical, social and city building aspects of landscape objects formation are studied. We give a historical overview of the development of landscape gardening styles and their impact on modern trends in landscape architecture. The theoretical bases and practical techniques of landscape

design, including architectural planning and space making system for formation of park space, natural and artificial components in the construction of garden compositions are considered.

**Urban landscaping.** The role of vegetation in creating the environment. Design of landscape. The technology of landscape construction. Landscaping villages and towns. List of woody plants for landscaping.

**Economics of garden-park management.** The Law of demand, offers, cost and competition. Production and resource potential under conditions of a market economic system. Formation of the gross national product in the state regulation of the economy development.

**Politics.** Laws, structure and functions of political science. Power and power relations. The political system of society, the role and place in her state. Political consciousness and political culture. Politics and national relations. National and state development of Ukraine

**Fundamentals of fine arts.** The course covers issues that provide the knowledge and skills to design a competent design solutions organization objects Landscape Architecture and green areas of settlements. Mastering the techniques, requirements and standards of graphic design that is actively used in carrying out the graphic part of the project documentation is essential for training specialists Landscape Architecture.

**Introduction and adaptation of ornamental plants.** Introduction and adaptation of plants have great theoretical and practical importance. During the course students are introduced to the theoretical and practical aspects of the introduction of plants, acquire skills with techniques evaluate the success and prospects of introduction. Also considered bioecological features of woody plants in the conditions of introduction.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines "History of Ukrainian Statehood", "Ethnocultural", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language (English, German, French, Spanish)", "Physical Training", "Labour and Life Safety", "Legal Personal Culture" see Section 2.1.

**Principles of professional training.** Discipline acquaints students - especially freshmen studying at the university, with the rights and duties of university students, history of the Forestry faculty of the National University of Life and Environmental Sciences of Ukraine, internal rules of the institution, organization of educational process, forms of training according to the curriculum, the hygiene of mental work and general rules of the work with a book and in the library. Emphasis is placed on the study of traditional features of separate discipline groups, which are taught at the faculty.

#### **2.2.1. Specialization "Garden-Park Management"**

**Mechanization landscape gardening work.** Structure tillage, nasinnyezbyrallyh, sowing machines. Machines and tools for protection and protection from diseases, pests and fires some trees and forest park plantings.

**Plant nurseries and seeds.** Planning activities for growing decorative plant material. Agrotechnical features of decorative woody plants cultivation as well as their propagating material. Organization of works in nurseries.

**Basics of urban development.** Academic discipline has been developed to inform students about the basics of urban planning and place of landscape planning in its structure.

**Recreational forestry.** The discipline considers the theoretical and practical basis of farming in the forests of recreational use. Attention is paid to applying differentiated farming in forests of different categories with purpose of different methods and types of cuttings in order to create healthy, economically valuable, aesthetically attractive and comfortable recreational forest plantations while maintaining their resistance to recreational effects. We consider the classification of forest and park landscapes, their aesthetic and hygienic properties. We study the succession of forest biocenosis provided various stages of recreational digression..

**Landscape inventory.** Methodological foundations, methods, and objects of landscape inventory. Principles of landscape-inventory measurements. Inventory of felled tree trunks volume. Inventory of wood products. Major landscape-inventory data of recreational forest stands and methods of their determination. Determination of growing tree stand stock . Inventory of the individual trees increment. Determination of forest stand growth. Inventory of recreational use forests. Peculiarities of aerial photographs use for landscape inventory.

**Engineering equipment of garden-park facilities.** In the training course "Engineering equipment of garden-park facilities" the issue of artificial landscaping garden and park facilities have been studied in detail, which are based on projects of horizontal and vertical layout integration, so the structure of the landscape is resolved for solving architectural and artistic as well as engineering-technical challenges faced by professionals of Landscape Architecture. At the same time students will study methods and ways of placing pipelines, laying underground and utilities on the ground.

**Ornamental plants under glass.** The course "Decorative plants closed ground" involves studying the biological characteristics of plant growth and development of subtropical and tropical regions of growth and areas with dry climates.

**Basics of afforestation.** The questions are related to the restoration of forests in urban landscapes. The principles of selection of forest stand types of different agricultural techniques and the purpose of their creation and growth are examined.

**Organization of Garden-Park Management.** Management of Garden-Park business. Fundamentals of Garden-Park Management Planning. Organization of landscaping design in cities and towns. The organization of construction in GPM.. Methods of labor groups management.

**Urban ecology and phytomelioration.** Discipline provides studying of patterns of urban areas and theoretical bases of cities ecosystems optimization. Urban ecology compared to other ecological disciplines, reveals the impact of urbanization on the environment, changes in urban landscapes and promotes environmental knowledge. The most effective ways to protect urban areas from adverse natural events and anthropogenic impact.

**Topiary art.** Discipline includes studying the history of topiary art, topiary art elements (hedges, borders, walls, bosquets, green cabinets, trellis with espalier, mazes, alleys, etc.). The study of growing technology and hedges laying. Features of reshaping plant forms and sculptural cutting. Study of making frames technology (for plants).

**Landscape construction.** Landscape construction is an important part of the overall complex planning and urban development. It includes a range of diverse degrees of complexity issues associated with design, construction, exploitation of garden and park facilities, creation, formation and maintenance of their sensitive component - decorative plantings. Landscape construction is a complex set of activities that involves solving various agricultural, aesthetic, organizational, operational and commercial, economic problems, aimed at creating garden and park facilities for various purposes.

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**General ecology.** Theoretical foundations of ecology. The doctrine of the biosphere. Ecosystem and biogeocoenosis. Trophic chains. Pollution. Forestry production and its environmental impact. Cost-effectiveness of environmental measures.

**IT Technologies.** The problems of designing gardens and parks objects of different purpose with special software on the PC.

## 2.6. FACULTY OF VETERINARY MEDICINE

### **Dean – Mykola I. Tsvilikhovskiy**

Academician of the Ukrainian Academy of Agrarian Sciences, Doctor of Science (Biology), Professor

Tel.: (044) 527-82-31 E-mail: m\_tsvilikhovsky@nubip.edu.ua

Address: building № 12, room №324 “G”

The faculty organizes and coordinates Bachelor training in the following specialty:

### **211 Veterinary Medicine**

Graduating departments:

Obstetrics Gynaecology and Animal Reproduction Biotechnology

Tel.: (044) 527-83-46 E-mail: akusherstvo@nubip.edu.ua

Head of Department- Doctor of Veterinary Sciences, Professor  
Lubetskiy Vitaliy Josephovich

Veterinary-sanitary examination

Tel.: (044) 527-88-41 E-mail: vse@nubip.edu.ua

Head of Department - Doctor of Veterinary Sciences, Professor  
Yakubchak Olga Mykolaivna

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  
Nedosekov Vitaliy Volodymyrovych

Parasitology and Tropical Veterinary Medicine

Tel.: (044) 527-83-65 E-mail: parazitologia@nubip.edu.ua

Head of Department - Doctor of Veterinary Sciences, Professor  
Soroka Natalia Mykhaylivna

Pathological anatomy

Tel.: (044) 527-86-17 E-mail: pathological\_anatomy@nubip.edu.ua

Head of Department - Candidate of Veterinary Science, Associate Professor  
Shestiaieva Natalia Ivanovna

Therapy and clinical diagnosis

Tel.: (044) 527-87-92 E-mail: kostenko\_vm@nubip.edu.ua

Head of Department - Candidate of Veterinary Science, Associate Professor  
Kostenko Vitalii Mykhaylovych

Surgery. prof. I.O Povazhenka

Tel.: (044) 527-88-68 E-mail: chirurgia@nubip.edu.ua

Acting Head of Department - Doctor of Veterinary Sciences, Associate Professor  
Malyuk Mykola Oleksiyovych



**Bachelor  
in speciality "VETERINARY MEDICINE"  
field of knowledge "Veterinary"**

Form of Training:	Licensed number of persons:
- full-time studies	250
Duration of training	4 years
credits	240 ECTS
Language of training	English, Ukrainian
Qualification of graduate	Jr. doctor of veterinary medicine

**Concept of training**

According to the standard of education, introduced by the Ministry of Education and Science of Ukraine dated 07.02.2011, № 99 students standard and elective academic disciplines. Graduate receives basic higher education and profession of junior doctor of veterinary medicine, who in production under the guidance of a doctor of veterinary medicine performs veterinary preventive measures that are aimed to prevent disease and death of animals, improve their productivity, quality and safety of animal products, provides preventive and diagnostic measures, treatment of animals, veterinary-sanitary examination slaughter products, ensures compliance of veterinary and sanitary regulations in housing, feeding and reproduction of animals.

**Practical training**

Bases of practical training students are educational, scientific, educational, scientific and industrial laboratories of basic institution of the University (Kyiv), its separate units, especially teaching and research farms of the University ("Velykosnitynske educational and experimental farm named by O. Muzychenko, "Agronomic Research Station," Teaching and Research Farm "Vorzel" Nemishaivo Agricultural College), where laboratory and practical classes, tutorials and practical training of students are kept. In addition, the Department has bilateral agreements with private clinics which deals with small domestic animals, agricultural enterprises of different ownership forms, which are used as a base for practical training.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of Graduates**

Graduates with a degree from the Faculty of Veterinary Medicine junior doctor may be employed in enterprises, institutions and organizations, both state and other forms of ownership where they will carry out work in accordance with the acquired skills.

## Bachelor`s Program and Curriculum in Specialty "Veterinary Medicine"

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Ukrainian language (for professional purposes)	1	90	3
2	Foreign Language (for professional purposes)	1 - 2	150	5
3	Philosophy	2	90	3
4	The history of Ukrainian culture	2	90	3
5	Politology	5	60	2
6	Anatomy of domestic animals	1 - 3	180	6
7	Biochemistry of animals with the basics of physical and colloid chemistry	2 - 3	120	4
8	Cytology, histology, embryology	2 - 3	150	5
9	Bioinorganic Chemistry	1	60	2
10	Organic Chemistry	2	60	2
11	Biophysics	1	60	2
12	Animal physiology	3 - 4	150	5
13	Fundamentals of Biosafety, Bioethics	2	60	2
14	Veterinary Ecology	2	60	2
15	Veterinary Sanitation and Hygiene	3	60	2
16	Veterinary Microbiology	3 - 4	90	3
17	Veterinary Immunology	4	60	2
18	Veterinary virology	5	90	3
19	Biotechnology in veterinary medicine	4	60	2
20	Physiopathology	4 - 5	120	4
21	Obstetrics, Gynaecology and Animal Reproduction Biotechnology	5 - 6	180	6
22	Veterinary-sanitary examination	7 - 8	150	5
23	Epizootology and infectious diseases	6 - 8	240	8
24	General and Special Surgery	6 - 7	180	6
25	Operative surgery, anesthesiology and topographical anatomy	4 - 5	120	4
26	Parasitology and invasive disease	6 - 7	180	6
27	Pathological anatomy and dissection	7 - 8	180	6
28	Inner diseases of domestic animal	6 - 8	270	9
29	Veterinary Pharmacology	5 - 6	180	6
30	Veterinary clinical biochemistry	7	60	2
31	Clinical diagnostics animals diseases	4 - 5	180	6
32	The organization and economics of veterinary affairs	6	90	3
33	Veterinary toxicology	7	90	3
34	Latin	1	60	2
35	Occupational Health and Safety	3	60	2
Total the obligatory component			4080	136
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Business Ukrainian language	1	60	2
2	Foreign Language	2	90	3
3	Physical training	1 - 2	60	2
4	Anatomical features of domestic animals	1	60	2
5	Botany	1	90	3
6	Zoology	1	90	3
7	Feeding of animals	4	90	3
8	Basics of breeding	3	90	3
9	History of Veterinary Medicine	1	90	3
10	Veterinary radiobiology	4	90	3

11	Medicinal Herbs	2	90	3
12	Professional Ethics	5	60	2
13	Genetics in Veterinary Medicine	3	90	3
14	Management and Marketing in Veterinary Medicine	5	90	3
15	History of Ukrainian nationhood	1	90	3
16	Etnoculturology	1	90	3
<b>Total offered by University</b>			<b>1320</b>	<b>44</b>
<b>2.2. Disciplines offered by students</b>				
1	Sociology	2	30	1
2	Economic theory	3	60	2
3	Science of law	2	30	1
4	Ukrainian business language and culture of speech	1	30	1
5	Fundamentals of psychology and pedagogy	3	30	1
6	Anatomy of exotic animals	3	60	2
7	Computer science in Veterinary Medicine	2	60	2
8	Fundamentals of Veterinary Sanitation, Microbiology and Virology	4	60	2
9	Methods for microbiological studies	7	60	2
10	Infectious diseases of small animals	7	120	4
11	Quality and Safety of Agricultural Products	8	90	3
12	Biotechnology of Animal Reproduction	6	90	3
13	Surgical diseases of productive animals	6	120	4
14	Parasitic diseases of productive animals	6	120	4
15	Fundamentals of judicial Veterinary	8	120	4
16	Veterinary oncomorphology	5	120	4
17	Diagnosis and treatment of internal diseases of productive animals	5	120	4
18	Fundamentals veterinary legislation Ukraine	8	120	4
<b>Total chosen by the student</b>			<b>1110</b>	<b>37</b>
<b>Total for the selective component</b>			<b>2340</b>	<b>78</b>
1	Military training	5 - 8	660	22
2	Educational practice	2,4,6,7	360	12
3	Production practice	7	270	9
<b>Preparation of bachelor work (thesis or project)</b>			-	-
<b>State certification</b>			<b>60</b>	<b>2</b>
<b>Total the direction of (without military training)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Ukrainian language (for professional purposes).** Scientific terminology, terms and their usagethat are specific to veterinary specialty and playback previously acquired knowledge.

**Foreign Language (for professional purposes).** A comprehensive study of language activities (reading, listening, speaking). Learn how to communicate and translate.

**Philosophy.** The system of philosophical knowledge of the main parts of philosophy which develops the type of consciousness that is based on the constructive-critical approaches to the ideals of humanism.

**The history of Ukrainian culture.** Ukrainian mental culture as part of the global cultural process. The role of culture in the formation of identity in the lives of the Ukrainian people. Objective and subjective factors of growth of cultural norms at the present stage of Ukraine.

**Politology.** Politics as a particular social phenomenon, Ukrainian political science, its main and dominant and Ukrainian political thought in general.

**Anatomy of domestic animals.** The structure of the body of animals exists in close connection with its functions. The machine movement. Osteology. Syndesmology. Myology. Overall cover. Splanchnology. Digestive apparatus. Breathing apparatus. Urogenital. Angiology. Endocrine glands. The nervous system. Senses. Features of the anatomy of poultry.

**Biochemistry of animals with the basics of physical and colloid chemistry.** Physical and chemical properties of organic compounds and solutions. Structure, function and metabolism of proteins, fats, carbohydrates, amino acids, nucleic acids, vitamins, enzymes, macro-and micronutrients that constitute the basis of the structure of body tissues. Biochemical processes underlying the functional activity of certain organs and systems.

**Cytology, histology, embryology.** Study of the cell. General embryology. Study of tissues. Histology of organs and systems.

**Bioinorganic Chemistry.** 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, basis of chemical isotopes. Volumetric analysis, acid-base titration, redoxmetria, physical and chemical analysis, photometry, chromatography.

**Organic Chemistry.** Structure, methods of production, physical and chemical properties, and use of the major classes of organic compounds - carbohydrates, alcohols, aldehydes, ketones, amines, acids, heterocyclic compounds. Properties of amino acids, carbohydrates, lipids, nucleic acids and proteins.

**Biophysics.** Physical and physico-chemical processes occurring in biological systems, the fundamental phenomena that form the basis of wildlife. Physical characteristics and physical properties of the body farm animals.

**Animal physiology.** Physiological processes in animals, including the 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.

**Fundamentals of Biosafety, Bioethics.** Examines the terms of use of laboratory animals in veterinary medicine, measures to prevent the spread of infectious and parasitic diseases, the rules of work with particularly dangerous infections.

**Veterinary Ecology.** 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.

**Veterinary Sanitation and Hygiene.** Learn sanitary and veterinary-sanitary requirements for environmental factors, livestock buildings, feed, water, soil, air and hygiene regulations and requirements for housing, feeding and maintenance of various types and age-sex groups of animals.

**Veterinary Microbiology.** Systematics, morphology and physiology of microorganisms spread in nature, their role in the transformation of matter in nature. The impact of environmental factors on microorganisms. Infection. Immunology. Types and features of pathogens: bacteria, bacilli, fuzibacteria and actinomycetes, mycobacteria, vibrio, spirochetes, mycoplasmas, rickettsia and chlamydia, microscopic fungi.

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**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.

**Biotechnology in veterinary medicine.** Genetic and cellular engineering, Immunobiotechnology, Applied Biochemistry, Enzymology engineering, industrial engineering or microbiology. Transplantation of embryos, early identification and regulation of gender of animals, cloning and transgenic reception, monozygotic and chimeric animals. Hybridoma technologies for monoclonal antibodies and their usage.

**Pathological Physiology.** General patterns of emergence, development and completion of the disease. Nosology. Role of reactivity in pathology. Characteristics, classification of typical pathological processes; inflammation, dysplasia tissue disorders 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.

**Obstetrics, Gynaecology and Biotechnology Animals Reproduction.** Physiological basis and technique of obtaining sperm. Physiology and biochemistry of semen. The technology of artificial insemination of females and embryo transfer. Andrology. Physiology and Pathology of pregnancy, birth and the postpartum period. Operative Obstetrics. Obstetrical and gynecological check-ups. Diseases of the newborn. Diseases of the breast. Gynecology. Female and male infertility.

**Veterinary-sanitary examination.** The rules and methods of Veterinary evaluation of animal origin and foundation of technology and standardization of their production. Examination of slaughter products of healthy and sick animals, food poisoning and toxicity. The basic technology and hygiene of preserving, hygiene of production, veterinary and sanitary examination of eggs, milk and milk products, meat of wild animals, wildfowl, fish and marine mammals. Veterinary-sanitary inspection of food in the markets.

**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, chicks, dogs and fur animals, bees and fish. Veterinary Sanitation. Diseases common to several species of animals and people.

**General and Special Surgery.** Veterinary traumatology. Surgical infection. Diseases of the skin, muscles, tendons, tendon sheaths and bursa, blood vessels, joints, injuries of nerves and brain. Tumors. Diseases in the area of the head, neck, withers, back, and chest wall, abdomen, pelvis and tail. Andrologic disease. Veterinary Orthopedics.

**Operative surgery, anesthesiology and topographical anatomy.** The doctrine of surgery due to topographic and anatomical features of certain parts of the body of animals. Anesthesiology, fixation, and the overthrow of drug reassurance. Technology and organization of mass operations. Prevention of infections in the work of doctor of veterinary medicine. Injection and puncture. Desmurgy. Surgical operations on the parts of bodies of animals.

**Parasitology and invasive diseases.** The emergence, development and extinction of invasive animal diseases. General parasitology. Veterinary Helminthology, Entomology, arachnology, protozoology.

**Pathological anatomy and dissection.** 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 the

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skin. Pathomorphology of infectious diseases. Sectional course. Forensic veterinary examination. Procession part. Special part.

**Internal diseases of domestic animals.** Internal diseases of farm animals, their etiology, pathogenesis, symptoms, course, diagnosis, treatment and prevention; laboratory studies. Diseases of the young animals. Diseases of poultry. Diseases of fur-bearing animals, rabbits and dogs.

**Veterinary Pharmacology.** Pharmacodynamics of drugs. Conditions affecting on the action of drugs. Key features and pharmacokinetic characteristics of different groups of drugs, their dosage. Compounding technology and formulations.

**Veterinary clinical biochemistry.** Using of variety of biochemical methods for the study clinical conditions of animals, especially of their use in the study of certain organs and systems to determine exact diagnosis and development of treatment and prevention of diseases. Biochemical tests and symptoms (syndromes) metabolic disorders and other animal diseases.

**Clinical diagnostics animals diseases.** Methods and peculiarities of the clinical studies of various animals, their use in the study of individual organs and systems, symptoms, syndromes and main stages of recognition of the disease. Special methods of research the conditions of separate organs and systems, detection of diseases in animals.

**The organization and economics of veterinary affairs.** Legislation on veterinary medicine in Ukraine. Organization and logistics of veterinary services and veterinary checks in regions, cities and farms. Planning, organization and economics of veterinary measures. Veterinary accounting, reporting and record keeping. The international veterinary organizations and veterinary services in some foreign countries.

**Veterinary toxicology.** Toxicology of mineral poisons, phosphorus and chlororganic compounds. Organic derivatives of mercury. Toxicology of phenoloksyacids and phenol. Toxicology of poisonous substances vegetable and animal origin. Poisoning by poor quality animal feed. Chemical and toxicological analysis.

**Latin.** Latin grammar, spelling rules and specific terms of veterinary medicine.

**Occupational Health and Safety.** The theoretical bases of labor protection. The legal basis for the protection of employees breeding and veterinary services. Fundamentals of industrial hygiene. Safety in livestock and poultry. Fire safety in livestock and poultry.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines "History of Ukrainian Statehood", "Ethnocultural", "Foreign Language (English, German, French, Spanish)", "Physical Training", see Section 2.1.

**Business Ukrainian language.** Preparing students for oral and written business communication that involves working with various types of scientific and business documents. Working with special texts by profession.

**Anatomical features of domestic animals.** Studies the anatomical features of the structure and systems of domestic animals in conjunction of their organs and systems, interdependence of their structure and functions on the background of development in ontogenesis and phylogenesis.

**Botany.** Learn plant life, structure, diversity, geographic distribution, environmental cenotic features, biological and economic properties of plants.

**Zoology.** Studies the animal world from the simplest to the chordate animals, patterns of their occurrence and development of animal organisms, body composition, reproduction of different types of certain animals

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**Feeding of animals.** Scientific basis of feeding farm animals, feed and nutritional evaluation the needs of animals in the factors of complete feeding. The physiological significance of individual nutrients feedstuff and usefulness of the concept of nutrition, assessment of nutritional feed and rations.

**Basics of breeding.** Breeding farm animals. Livestock. Pig. Sheep. Poultry. Equine.

**History of Veterinary Medicine.** History of Veterinary in the primitive community, in Kievan Rus' principalities IX-XIV century, in Russia XVI11 and XIX century. History of veterinary medicine in the USSR. The current state of veterinary medicine in Ukraine.

**Veterinary radiobiology.** Biological effects of ionizing radiation. Radiation injury of animals. Radioecology and toxicology of radioactive substances. Radiological and veterinary-sanitary examination of objects under veterinary supervision. The use of ionizing radiation in animal husbandry and veterinary medicine.

**Medicinal plants.** The flora of the planet and Ukraine, medicinal and poisonous flora; Collecting and harvesting of medicinal plant raw materials, processing technology and processing, chemical composition, pharmacological action, purpose, dosage forms, dosage, indications and contraindications for use.

**Professional Ethics.** Morality and ethics. Functions of morality in the development of personality doctor of veterinary medicine. Deontology. Universal values and moral code veterinarian by supreme moral values. Laws of Ukraine and International Law on the basics of Professional Ethics doctor of veterinary medicine.

**Genetics in Veterinary Medicine.** Studies the the basics of heredity and variation in organisms, reveals the principles of storage, transmission and realization of genetic information, including cytological and molecular basis of heredity, the laws of inheritance, characteristics (disability, illness), linked inheritance, basic genetic engineering, population and clean lines, basic immunogenetics.

**Management and Marketing in Veterinary Medicine.** Business plan: preparation and execution. The organization of the enterprise. Marketing operations.

## ***2.2. Disciplines offered by students***

**Sociology.** Explore the society as a complete system, social institutions, and community groups, social causes of individual and mass behavior, the processes of human social relations.

**Economic theory.** The content of the basic laws and categories of economic theory, characteristics of the market economy and solving the problems of its creation in Ukraine of the positive experience of the market economy in developed countries.

**Jurisprudence.** Patterns of State and Law, certain areas of legislation Ukraine. Description of the constitutional, labor, environmental, land, civil, administrative, criminal and family law.

**Ukrainian business language and culture of speech.** Preparing students for oral and written business communication, which involves working with different kinds of scientific and business documents. Working with special lyrics by profession.

**Psychology and Pedagogy.** Provides psycho-pedagogical training of future professionals that will enhance overall psychological and pedagogical culture, a cohesive idea of the psychological characteristics of man as a factor in the success of its operations, the ability to think independently and to foresee the consequences of their actions.

**Anatomy of exotic animals.** Studies the of the structure of organs and systems of the exotic animals in conjunction of their structure and functions, and their development during ontogenesis and phylogenesis.

**Computer science in Veterinary Medicine.** 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.

**Fundamentals of veterinary sanitation, microbiology and virology.** Teaches evaluate microbes that are in the environment, studies microbiological parameters hygienic regulation, methods for monitoring the disinfection of objects of the environment as well as identify infectious animal diseases of bacterial and viral etiology.

**Methods for microbiological studies.** Studies the modern laboratory methods for detecting and identifying bacteria, viruses and fungi on animal health and pathology, quality and safety.

**Infectious diseases of small animals.** Studies the diseases that cause significant changes in animal organisms and lead to decrease of physiological and working skills of small animals, and not seldom causes death. The study of this subject will enable students to gain knowledge of methods of diagnosis of the disease at any stage of its development, planning and timely laboratory diagnosis using modern methods, devices and methods, development, providing and monitoring of sanitation in farms of different ownership forms, at the objects of the environment, and prediction of diseases.

**The quality and safety of agricultural products.** Rules and methods of veterinary-sanitary assessment of products of animal origin and basis of technology and standardization of their production. Examination of products of slaughter of healthy and sick animals, food poisoning and toxicity. Fundamentals of technology and production hygiene, veterinary-sanitary examination of eggs, milk and milk products, meat, fish and animals. Veterinary-sanitary inspection of food in the markets.

**Biotechnology of Animal Reproduction.** To form for a future doctor of veterinary medicine knowledge and skills in the physiology of animal reproduction, modern methods of identifying the optimal time of insemination, methods of obtaining semen from bulls and their evaluation insemination of females. Use and implementation of new directions of animal biotechnology (embryo transfer, sexing semen) in cattle.

**Surgical diseases of productive animals.** Studies surgical disease patterns of development and the general principles of treatment based on localization of pathological process in farm animals.

**Parasitic diseases of productive animals.** Studies localization of agents in animals, dissemination, ways of infection and factors of transmission of agents, pathogenesis of invasive disease in farm animals, principles of laboratory diagnostics and prevention and combating invasive diseases of farm animals.

**Fundamentals of Forensic veterinary medicine.** Examines the complex issues related to the legal framework of a doctor of veterinary medicine. Covers the basics of the legal framework of Ukraine, peculiarities of forensic veterinary examination in case of death of animals from different reasons.

**Veterinary oncomorphology.** Studies cell morphology tumor pathology, its structure, mechanisms of cooperation and breach of metabolic and functional mechanisms.

**Diagnosis and treatment of internal diseases of productive animals.** Examines clinical, instrumental and laboratory techniques for sick farm animals and causes, mechanisms of development, clinical and morphological manifestation, course and treatment of internal diseases.

**Principles of veterinary legislation Ukraine.** The course examines the theoretical and practical foundations of legal and legislative activity in the field of veterinary medicine. Considering the law as "the laws of social nature, embodied in legislation", this discipline manifests the importance of a legal activity in the field of veterinary medicine. Study of legally significant, legally regulated actions and operations aimed at meeting the public and private interests in the veterinary field.

## **2.7. FACULTY OF ALIMENTARY TECHNOLOGIES AND MANAGING BY QUALITY OF PRODUCTS OF AGRICULTURAL COMPLEX**

**Dean** – doctor of sciences, professor **Bal-Prylypko Larissa Vatslavivna**

Phone: (044) 527-89-50, E-mail: [bplv@mail.ru](mailto:bplv@mail.ru)

Location: training housing # 12, rooms 305 and 306

The faculty organizes and coordinates the process of training of bachelors by specialty:

### ***181 Food Technologies***

Graduating department:

Technology of meat and fish products, and of seafoods

Phone: (044) 527- 88-85, E-mail: [slob2210@ukr.net](mailto:slob2210@ukr.net)

Head of the chair – doctor of biological sciences, professor Derevianko Liudmila Petrivna

**Program of training of bachelors by specialty  
“FOOD TECHNOLOGIES”  
by sphere of knowledge of “Manufacturing and technologies”**

Form of training:	Licensed number of persons:
– daytime	100
– extramural	100
Term of training	3 years and 10 months
Credits	240 ECTS
Language used in training	Ukrainian, English
Qualification of graduates	engineer-technologists

### **Concept of training**

The successful practical realization of solutions used in realization of important for Ukraine problems of reprocessing of raw materials for producing of foodstuffs is possible in training of engineers-technologists of level of education of “Bachelor” by specialty of “Alimentary technologies”. The factors that define the problems to be solved in training of experts by specialty of “Alimentary technologies” are: increasing of output of high-quality traditional and innovative foods, development and introduction of intense technologies in use of results of fundament research in sphere of biotechnology, realization of modern technical and technological solutions. The causes of studying of said problems are those that the modern processes of development of native and foreign industry are formed on base of functioning of enterprises that operate in sphere of biotechnical industry character by the closed cycle of manufacturing. The principal peculiarities of processes they use are realization of principle of purposeful reprocessing of food raw materials in concrete foodstuffs and specific mounting of technological equipment in their production.

### **Practical training**

TOV “Globinskii meat-packing factory» Poltava region, STOV «Agricultural firm KUibyshevo» Poltava region, TOV «Agricultural firm Stolychna» Kyiv region, TOV «Kovin'ko-kovbasy», Vinnitsa region, TOV «Cherkas'ka prodovolcha kompaniia», city of Cherkasy, PP «Gaisynmiasokombinat» Vinnitsa region., «O. Muzychenko «Velykosnityns'ke NDG», PAT «Koziatynskii miasokombinat», Vinnitsa province., TOV «Lityns'kii miasokombinat», Vinnitsa region, TOV «Polis», Kyiv region., TOV «Boyarski kovbasy» Kyiv region,

VAT «Ochakivskii rybokonservnyi kombinat», Mykolaiv region, TOV «Rybni promyslovi tekhnologiji», city of Zhitomir, ZAT «Chernigivs'ke pidpryemstvo po pererobtsi ta realizatsiji rybnykh tovariv «Chernigivryba», city of Chernigiv, TOV «Rybkoopprodukt», village of Pinchuki, Kyiv region.

### **Proposed Topics for Bachelor theses**

1. Project of meat and fat producing complex of productivity of 23 tons of meat per shift including 30 % of porcine meat in skin and 70 % of beef.
2. Project of workshop of productive capacity of 2.5 tons of sausages per shift including 10 % of small sausages.
3. Project of industrial complex by producing of 28 tons of meat of birds per shift, including 50 % of hen and 50 % of broilers.
4. Project of workshop by producing of semi-finished meat products of productive capacity of 7.0 tons of finished products per shift, including 40 % of production packed in paste case.

5. Project of workshop by production of dried fish.
6. Project of workshop by producing of frozen fish.
7. Project of workshop by producing of preserved fish in small packing.
8. Project of workshop by producing of canned fish made of raw materials taken from the Black and Azov seas.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

### **Employment of Graduates**

As provides the branch standard of higher education of Ukraine, the graduate obtains after finishing of training the qualification of engineer-technologist. The specialists are capable to carry put the work at certain positions by specialty accordingly to norms of the State classifier of professions of DK 003-96. The main sphere of their activities is work at industrial enterprises of meat- and fish industries, as well as at enterprises and firms of all forms of property that operate at conjugated spheres of activities. The principal types of their operation is carrying out of organizational, managing, industrial, pedagogical, projecting and R&D works in spheres of investigation of novel and betterment of existing technologies of producing of meat and meat products, and fish and fish products. After obtaining of the necessary qualification, graduates can work at enterprises of food and reprocessing enterprises of agricultural sphere of economy.

### Bachelor`s Program and Curriculum in Specialty «Food technologies»

# #	Name of training discipline	Semester	Duration of training	
			Hours	credits ECTS
1. OBLIGATORY TRAUNING DISCIPLINES				
1	Higher mathematics	1, 2	210	7,0
2	Chemical base of alimentary technologies, including:	1, 2, 3, 4	690	23,0
2.1	General and inorganic chemistry	1	180	6,0
2.2	Analytical chemistry	2, 3	150	5,0
2.3	Organic chemistry	2	180	6,0
2.4	Physical and colloid chemistry	3, 4	180	6,0
3	Engineering and computer' graphics	1, 2	210	7,0
4	Physics	2, 3	150	5,0
5	Biochemistry	3, 4	180	6,0
6	Informatics and information policy	3	90	3,0
7	Heat engineering	4	90	3,0
8	Electric engineering	4	90	3,0
9	Processes and apparatus used in alimentary technologies	4, 5	300	10,0
10	Technical microbiology	4	90	3,0
11	Generalized technologies used in industry by producing of alimentary production	5, 6	600	20,0
12	Information technologies used in engineering calculations in the branch-industry	5	90	3,0
13	Technology of producing of polysaccharides and their use in food industry	6	90	3,0
14	Automation of process of manufacturing	6	90	3,0
15	Technology of producing of sanitary foodstuffs	7	90	3,0
16	Fundamental of protection of labor	7	120	4,0
17	Technological equipment used in the branch-industry	6, 7	150	5,0
18	Standardization, metrology, certification and quality management	8	150	5,0
19	R&D work of students	8	120	4,0
20	Economy of enterprises	7	90	3,0
21	Theoretical base of alimentary technologies	3	90	3,0
22	Fundamental principles of mechanics and reliability of equipment used in the branch-industry	3	90	3,0
23	Material science	3	90	3,0
In total by the obligatory constituent of training			3960	132
2. SELECTIVE TRAINING DISCIPLINES				
2.1. Disciplines studied by choose of the University				
1	History of Ukraine	1	120	4,0
2	Ukrainian language (by profession)	1	120	4,0
3	History of Ukrainian culture	1	90	3,0
4	Foreign language	1, 2	150	5,0
5	Jurisprudence	3	90	3,0
6	Philosophy	3	120	4,0
7	Fundamentals of religion	4	90	3,0



8	Fundamentals of psychology	5	90	3,0
9	Physical training	1, 2, 3, 4	120	4,0
<b>In total by choose of the University</b>			<b>870</b>	<b>29</b>
<b>2.2. Disciplines studied by choose of students</b>				
1	Political science and fundamentals of sociology	1	90	3,0
2	Education in universities	1	90	3,0
3	Ethics and culture of nutrition	2	90	3,0
4	Fundamentals of animal husbandry	4	120	4,0
5	Fundamentals of physiology and hygiene of nutrition	6	90	3,0
6	Hygiene and sanitary at enterprises that produce foods	6	90	3,0
7	Management at enterprises of the branch-industry and fundamentals of business undertakings	6	90	3,0
8	Fundamentals of construction in industry	6	90	3,0
9	Physicochemical and technical base of processes of refrigeration	7	90	3,0
10	Technological calculations and accounting in the branch-industry	7	90	3,0
11	Industrial ecology of reprocessing enterprises	8	105	3,5
12	Control of quality and safety of production of branch-industry	8	105	3,5
13	Merchandising and packing of foodstuffs	8	90	3,0
<b>In total</b>			<b>1230</b>	<b>41</b>
<b>2.2.1. Specialization «Technology of meat and meat products»</b>				
1	Physicochemical and biochemical processes of reprocessing of meat	4	120	4,0
2	Technologies used in the branch-industry	5, 6, 7, 8	390	13,0
3	Biochemistry of meat and meat products	7	90	3,0
4	Projecting of enterprises of meat-processing industry	7	90	3,0
5	Microbiology of meat and meat products	7	90	3,0
<b>In total by specialization</b>			<b>780</b>	<b>26,0</b>
<b>2.2.2. Specialization «Technology of fish and seafood»</b>				
1	Physicochemical and biochemical works by reprocessing of fish and seafood	4	120	4,0
2	Technologies used in the branch-industry	5, 6, 7, 8	390	13,0
3	Biochemistry of fish and seafood	7	90	3,0
4	Projecting of enterprises of fish-processing industry	7	90	3,0
5	Microbiology of fish and seafood	7	90	3,0
<b>In total by specialization</b>			<b>780</b>	<b>26,0</b>
<b>In total by choose of students</b>			<b>2010</b>	<b>67,0</b>
<b>In total by the selective constituent</b>			<b>2880</b>	<b>96,0</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training	5, 6, 7, 8	675	22,5
2	Work experience courses	2	60	2,0
3	Practical training	4	60	2,0
4	Practical training	6	90	3,0
<b>Preparation of bachelor' diploma (project)</b>				<b>5,0</b>
<b>State attestation</b>				
<b>in total by profile of training (excluding the military training)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Higher mathematics.** Determinants and systems of equations, functions, derivatives, methods of integration, differential equations of first order and upper orders, systems of differential equations, use of differential calculus in studying of functions and plotting of graphs.

**General and inorganic chemistry.** Structure of matter, types of chemical bonds, general regularities of passing of chemical processes, electrolytic dissociation and hydrolysis, oxidative and reducing equations, basic properties of chemical elements and their compounds.

**Analytical chemistry.** Gravimetric analysis, titrimetric analysis (acid-base interaction, methods of precipitation and forming of complexes), electrometric method, conductometry, polarography and amperometry, emission spectrometric analysis, luminescence.

**Organic chemistry.** Albumens, aminoacids, enzymes, lipids, carboxylic (nutritional) acids, hydrocarbons, properties of organic compounds.

**Physical and colloid chemistry.** Chemical equilibrium, equilibrium of phases, chemical kinetics and catalysis, solutions of electrolytes, electrochemical processes and electromotive forces, structure of molecule, molecular spectra, intermolecular interaction, molecularly-kinetic and optical properties of disperse systems, surface effects and adsorption, emulsions and foams, aerosols, structure and properties of high-molecular compounds.

**Engineering and computer graphics.** Methods of projection, curve lines on surface, their practical use in constructing of technological equipment, machine graphics, use of computers in projecting and constructional work.

**Physics.** Physical foundations of mechanics, fundamentals of molecular physics and thermodynamics, direct electrical current, electromagnetism, electromagnetic oscillations and waves.

**Biochemistry.** Interrelation of processes of metabolism in organisms; biochemical processes occurred in storage and reprocessing of food raw materials; types of fermentation (alcoholic, propionic-acid, amylic), generalized regularities of metabolism, energetic metabolism.

**Informatics and information technologies.** Technical and programmatic means of realization of informative processes, algorithmization and programming, software and computer graphics, use of system of "Internet".

**Heat engineering.** Heat-exchanging apparatus, boiler installations, systems of supply of heat to enterprises, which produce foods, protection of environment.

**Electric engineering.** Electric machines, transformers, electric lighting, supply of energy to enterprises that produce foods, saving of electric energy.

**Processes and apparatus used in alimentary technologies.** Constructions and basic characteristics of modern equipment of enterprises that produce foods, technological processes and parameters, which are used in producing of various types of foodstuffs.

**Technical microbiology.** Interrelations of microorganisms among themselves and with other organisms, genetics and ecology of microorganisms, microbiological processes occurred in process of storage and reprocessing of food raw materials, control of microbiological, sanitary and hygienic conditions of manufactures.

**Generalized technologies used in industry by producing of alimentary production.** Assortment of foodstuffs, level of development and tendencies of progress of branches of economy in Ukraine and abroad. Composition, properties and quality of vegetative and zoic raw materials used in alimentary technologies. Advanced technological schemes used in the food industry. Complex schemes of reprocessing of raw materials in food industry. Efficient use of secondary raw materials.

**Information technologies used in engineering calculations in the branch-industry.** Theoretical and practical training of students by use of information and investigatory complex of data used in alimentary technologies and organization of access to modern informative resources, giving of knowledge on effective means and methods of development, storage, processing and transmission of information.

**Technology of producing of polysaccharides and their use in food industry.** Information of general character, nomenclature of polysaccharides. Classification of food additives of group of polysaccharides. Use of polysaccharides in food industry. Study of influence of polysaccharides on organisms of men.

**Automation of processes of manufacturing.** Technological processes of food industry subjected to automation, automated systems of operation by technological processes, elements of projecting of systems of automation of alimentary technologies, use and servicing of computerized systems of servicing of enterprises, which produce foods.

**Technology of producing of sanitary foodstuffs.** General characteristic and classification of foodstuffs, characteristics of basic functional ingredients and principles of development of functional foodstuffs.

**Technological equipment used in the branch-industry.** Principle of development of modern equipment to be used in the branch-industry. Rational methods of exploitation of the advanced equipment used in the branch-industry. Basic directions of progress of processes of mechanization and automation of technological lines.

**Standardization, metrology, certification and quality management.** Types of standards, procedures of their development and revision. State supervision and legal problems of standardization. Quality of production, control of work in ensuring of its proper quality. Certification. metrological service of the enterprise. Notions of measurement and means of measurement.

**R&D works of students.** Theoretical investigations and their experiments verification, factorial experiment, operation in processing of data by methods of mathematical statistics, basic knowledge on patent law, computerization of process of development of technical solutions.

**Economy of enterprises.** General characteristic of economy of food industry. Fixed funds of manufactures. Amortization of fixed manufacturing funds. Circulating assets of food industry enterprises.

**Theoretical base of alimentary technologies.** Basic concepts of technologies, procedures of their choose , as well as theoretical bases and regularities used in accomplishing of technological processes of food industry; theoretical base of processes of mechanical treatment of food raw materials; physicochemical processes put in base of food technologies and theoretical base of work in thermal treating of food raw materials.

**Fundamental principles of mechanics and reliability of equipment used in the branch-industry.** Generalized principles of projecting of technical and technological schemes that should have the specified level of reliability. Investigation of wearing of technological environments in process of their exploitation and identification of longevity of servicing of details of technological equipment. Choose of constructive materials to be

used for assuring of the specified level of reliability of operation of machines and apparatus in producing of foodstuffs.

**Material science.** Physicochemical and technical characteristics of materials, classification and specific features of materials.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines of “History of Ukraine”, “Philosophy”, “Ukrainian language (by profession)”, “Foreign language”, “Physical training”, “Safety of work and life”, “Legal culture of the personality” see Chapter 2.1.

### **2.2. Disciplines offered by students**

**Political science and fundamentals of sociology.** Formation of knowledge (basic stages of formation and progress of psychology of personality; methods used in its development, interpersonal relations, processes occurred in groups, basic problems, concepts, social and psychological phenomenon.

**Education in universities.** Basic directions of activities of bachelors specialized in work at enterprises that produce foods, general concepts and information on engineering processes and development of food-producing enterprises, data on kinds of scientific information, types and kinds of editions, role of libraries in storage and search for information.

**Ethics and culture of nutrition.** Nutritional base of mankind in history and now, stages of formation and progress of culture of nutrition worldwide and in Ukraine, causes of origination of events of crisis in alimentation and methods of their overcoming during the history of men’s civilizations, general principles of progress of alimentary technologies and culture of consumption of foodstuffs.

**Fundamentals of animal husbandry.** Types of species, biology, methods of natural and artificial reproducing of animals, feeding and breeding of animals, basic technological processes of manufacture of products of husbandry.

**Fundamentals of physiology and hygiene of nutrition.** Fundamentals of theory of nutrition, hygienic characteristic of various foodstuffs, food additives, methods of development of conditions of safety of foodstuffs that are of high nutritional and biological value.

**Hygiene and sanitary at enterprises that produce foods.** The training program presumes studying of fundamental problems of sanitary and hygiene to be observed at enterprises that produce foods, as well as observance of established conditions of safety in manufacturing premises, at workshops and lines, as well as of norms of personal hygiene of personnel of the enterprise. There are considered also the problems of use apparatus of sanitary treatment of equipment and premises, as well as detailing of properties of detergents and disinfectants used in it.

**Management of enterprises of the branch-industry and fundamentals of business undertakings.** Organization principles of functioning of enterprises. Planning and organization of operation of the main manufacture. Principles of scientific organization of labor. normalization and organization of system of remuneration of personnel for their work. Organization of material and technical servicing of manufacture.

**Fundamentals of construction in industry.** Fundamental principles of construction in industry, planning of productive areas and fundamentals of sanitary technique.

**Physicochemical and technical base of processes of refrigeration.** Principles of operation of modern refrigerating equipment used in the branch-industry, its rational use and methods of advancement of processes of mechanization and automation of refrigerating technological lines.

**Technological calculations and accounting in the branch-industry.** Calculation of quantities of basic raw materials and auxiliary materials to be used in producing of finished products, calculation of their prospective output. Choice of basic technological equipment, which would operate under the guidance of computerized means of control. Use of taken knowledge in conditions of optimization of realized processes of manufacturing; rational technological solutions; analysis of current situations at manufactures.

**Industrial ecology of reprocessing enterprises.** Ecological state of enterprises that produce foods and the foodstuffs proper, energetics and ecology, monitoring of environment, sources of pollution and classification of pollutants of biosphere, environmental norms, protection of aerial environment, water resources and biosphere.

**Control of quality and safety of production of the branch-industry.** Inventory of raw materials in its accepting. Control of quality of raw materials in its acceptance for reprocessing, control of quality of finished products. Identification of loss of raw materials in processes of their transportation and preliminary treatment. Identification of mass parts of water, dry substances, pH, mineral substances, albumens, fats, hydrocarbons, vitamins pectin etc. in raw materials, semi-finished and finished products.

**Merchandising and packing of foodstuffs.** Practice and methods of evaluation of quality, forecasting of level of integrity and guarantees of safety of consumption of foodstuffs. Categorical apparatus of merchandising, its terms and definitions, nomenclature of indices of quality of new types of foodstuffs and their unification by observance of clauses of normative documents of international category.

### ***2.2.1. Specialization «Technology of meat and meat products»***

**Physicochemical and biochemical processes of reprocessing of meat.** Biochemical and physicochemical processes occurred in processes of storage and reprocessing of meat, interrelations of microorganisms amongst themselves and with other organisms in storage of finished products, generalized regularities of metabolism, energetic exchange.

**Technologies used in the branch industry.** Structure of the branch-industry. Assortment of products of the branch-industry. Nutritional value and properties of products in their consumption, their organoleptic and physicochemical indices of quality. Technology of producing of products of preliminary and finishing reprocessing of raw materials used in the branch-industry. Complex reprocessing of raw materials used in the branch-industry. Advanced methods of fabrication of foodstuffs. Imperfections of products, causes of their origination and methods of prevention of their repeated appearance.

**Biochemistry of meat and meat products.** Identification of chemical composition of muscular and other tissues, which form meat of various kinds of domestic animals and birds; studying of biochemical processes that occur in live and slaughtered animals (in process of afterripening of meat and in process of its deterioration), identifying of their influence on passing of processes of producing of high-quality products; studying of biochemical indices of quality of meat and meat products, as well as identification of influence on their quality of various factors (quality of fattening, conditions of keeping, season, sex, physiological conditions of animals, conditions of environment etc.).



**Projecting of enterprises of meat-processing industry.** Studying by students of methods of projecting, carrying out of calculation of technological parameters of enterprises and their graphical representation in process of projecting of technological lines used in meat-processing industry.

**Microbiology of meat and meat products.** Role of microorganisms in various processes of reprocessing and storage of meat raw materials; acquiring of practical experience in indication and identification of microorganisms, which vital activity influences on indices of quality and safety of meat and meat products; studying of etiology of ripening of meat and meat products; studying of systematics of prophylactic measures to be taken for prevention of occurrence of food poisoning and inflectional diseases of men caused by consumption of rotten meat and meat products.

### ***2.2.2. Specialization «Technology of fish and seafood»***

**Physicochemical and biochemical works by reprocessing of fish and seafood.** Physicochemical and biochemical processes occurred in raw materials and products in process of their salting, freezing, thermal treatment, smoking, drying and new methods of technological treatment that have the purpose of reaching of optimum conditions of producing, forming of functional properties of raw materials and quality of finished products.

**Technologies used in the branch-industry.** Theoretical and practical problems arisen in realization of processes of reprocessing of fish, backboneless and other hydrobiontes; acquirement by students by knowledge of chemical composition, biological and energetic value of fish and seafood, basic technologies of their reprocessing, reasoning of decisions taken in development of related technologies, choose of methods of carrying out of technological operations and calculation of parameters of processes of manufacturing.

**Biochemistry of fish and seafood.** Biochemical processes occurred in tissues and organs of fish during its life, during the postmortal period and in process of its reprocessing; acquainting with chemical methods of identification of level of quality and freshness of fish and seafood.

**Projecting of enterprises of fish-processing industry.** The program of training presumes studying of theoretical and practical problems that arise in process of realization of typical processes of storage, preservation and reprocessing of fish, use of elements of the system of automated projecting of fish-processing enterprises, technological projects of manufactures of fish and seafood; technological projects of enterprises by producing of fish products; accounting and graphical chapters of works by projecting of related enterprises.

**Microbiology of fish and seafood.** Studying of morphology and physiology of basic groups of microorganisms, which vital activity influences on quality of fish and seafood; causes of deterioration of quality of fish and seafood; studying of the system of prophylactic measures to be taken for prevention of occurrence of food poisoning and inflectional diseases of men caused by consumption of rotten fish and seafood.



## 2.8. FACULTY OF MECHANICS - TECHNOLOGY

**Dean** - Associate Professor **Yaroslav Mykhaylovich**

Tel. : (044) 527-85-34 E-mail : mtf11k@ukr.net

Location: educational building number 11, room. 309

The faculty organizes and coordinates Bachelor training in the following specialties:

### **208 Agricultural Engineering**

Graduating departments:

Agricultural machinery and systems engineering them. Acad. PN Vasylenka

Tel. : (044) 527-85-37 E-mail: \_Vtesluk @ i / ua

Head of Department - d.s.n., prof. Teslyuk Victor Vasylovych

Mechanization of livestock

Tel. : (044) 527-85-35 E-mail: gagolub@mail.ru\_gagolub@mail.ru

Head of Department - Doctor of Technical Sciences prof Golub Gennady Anatolievich

Technical service and engineering management . im MP Momotenka

Tel. :( 044) 527-88-53\_ E-mail: vdv-tsim@ukr.net

Head of Department - Prof . Voytyuk Valery D.

Occupational Health and environment engineering

Tel. :( 044) 527-82-99\_ E-mail: voynaiov@bigmir.net

Head of Department - PhD. Voinalovych Alexander Volodymytrovych

Tractors and cars

Tel. :( 044) 527-88-95

Head of Department - PhD. Syera Catherine Myhaylivna

Mechanization of livestock. Tel. : (044) 527-85-35 E-mail: gagolub@mail.ru

Head of Department - Doctor of Technical Sciences prof Golub Gennady Anatolievich

Tractors and cars Tel. :( 044) 527-88-95 E-mail:

Head of Department - PhD. Syera Catherine Myhaylivna

Technical service and engineering management . im MP Momotenka

Tel. :( 044) 527-88-53\_ E-mail: vdv-tsim@ukr.net

Head of Department - Prof .. Voytyuk Valery D.

Occupational Health and environment engineering

Tel. :( 044) 527-82-99\_ E-mail: voynaiov@bigmir.net

Head of Department - PhD. Voinalovych Alexander Volodymytrovych

**275 *Transport Technologies (Motor Transport)***

Graduating departments:

Transport technology and tools in agriculture

Tel. : ( 044 ) 527-86-32 E-mail: kozyptsya@mail.ru

Head - prof. Fryshev Sergei G.

Tractors and cars

Tel. : ( 044 ) 527-88-95 E-mail: syera\_kateryna @ mail.ru

Head of Department - PhD. Syera Catherine Myhaylivna

Technical service and engineering management. Im. MP Momotenka

Tel. : ( 044 ) 527-88-53\_ E-mail: vdv-tsim@ukr.net

Head of Department - Prof .. Voytyuk Valery D.

**Bachelor**  
**in specialty "AGRICULTURAL ENGINEERING"**  
**field of knowledge "Agricultural Science and Food"**

Form of Training:	Licensed number of persons:
– Full-time	200
– Part-time	200
Terms of Learning	4 years
Credits	240 ECTS
Language of instruction	Ukrainian, English
Qualification graduate	Master (Technical), Engineer-Research of Mechanization's Agriculture

**Concept of training**

Of knowledge and skills specialist in next generation processes, machines and equipment for plant growing, cattle breeding, biotechnology, process industry etc. 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.

**Practical training**

Passage education (Trial, repair and metalwork) and industrial (mechanical-technological, vocational and technological, production in enterprises) recommended practices 127 enterprises, including strategic partners: Claas Ukraine; John Deere Ukraine; Amaco Ukraine; Technician enerzhi; Astra; Zeppelin Ukraine; Lemken Ukraine; Vaderstadt Ukraine; Tan; Komsomolets; NSC "Institute of Mechanization and Electrification of Agriculture"; UkrNDIPVT them. Leonid Pogorelogo.

**Proposed Topics for Bachelor theses**

1. Development of the process and rationale of cars growing crops (wheat, barley, rye, sorghum, sugar beet, corn, sunflower, etc.).
2. Development of technology and justification of technical service of agricultural machinery (by brand and type).
3. Evaluation of technical state of working of agricultural machinery (by brand mobile power tools, tractors, grain, corn, forage harvesters, beet machines, sowing complexes, etc.) in the development process of their recovery.
4. Development of technology and of technical substantiation of construction machinery (brands and types).
5. Development of the process and rationale of machine processing of agricultural products.
6. Development of the process and rationale of machines for the production of biofuels (biogas).
7. Development Process repairing agricultural machinery (brands) and justification (development) set of means of implementation.
8. Rationale kit machinery and equipment (vivotsefermy, MTF, pig, etc.) to the research process (maintenance, feeding, etc.).
9. Justification measures to prevent accidents and injuries in manufacturing processes APC.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

### **Employment of Graduates**

Receives basic higher education and can work in positions that correspond to the 3rd and 4th qualifying levels under state classifier professions: Head of the repair shop, mechanized detachment chief engineer on the use of ICC technical service engineer, engineer, inspector health and safety.

### Bachelor`s Program and Curriculum in Specialty "Agricultural Engineering"

№	Name of Academic Discipline	Term	Scope	
			hours	ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Physics	1,2	120	4.0
2	Descriptive geometry and computer graphics	1,2	180	6.0
3	Higher Mathematics	1,2,3	300	10.0
4	Materialscience and TCM	2,3	180	6.0
5	Theoretical Mechanics	2,3	210	7.0
6	Chemistry	2	120	4.0
7	Theory of mechanisms and machines	3	180	6.0
8	Mechanics of materials and structure	3, 4	180	6.0
9	Tractors and cars	3,4,5	360	12.0
10	Agriculture machines	4,5,6	360	12.0
11	Fuel and lubricants and other operating supplies	4	120	4.0
12	Standartization and teachical measurements	5	90	3.0
13	Parts of machines	5	120	4.0
14	Lifting machines	6	90	3.0
15	Machines and equipment for livestock	6	120	4.0
16	Machines in stockbreeding	7,8	180	6.0
17	Machines in croppgrowing	7,8	180	6.0
18	Techical servis of machines	7,8	180	6.0
19	Reability and repair of machines	7,8	180	6.0
20	Machines and equipment for processing of agricultural products	7	120	4.0
21	Machines in processing industry	8	90	3.0
Total for standard part			3660	122
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Ukraine history	1	90	3.0
2	Ethnocultural	1	90	3.0
3	Ukrainian language for professional purposes	1	90	3.0
4	Foreign Language	1	210	7.0
5	Physical Culture	1,2,3,4	90	3.0
6	Philosophy	5	150	5.0
7	Social sciences	6	210	7.0
8	Safety and life	2,8	120	4.0
Total (Disciplines offered by University)			1050	35
2.2. Disciplines offered by students				
1	Technology of growing, processing and storage agriculture products	2	180	6.0
2	Computers and Computer Technology	2	90	3.0
3	The " machine -field - biological matrix "	3,4	90	3.0
4	Hydraulics and Heating Engineering	3,4	120	4.0
5	Fundamentals Driving and s.h.tehnikoyu	4	150	5.0
6	TOE , electrical and electric agriculture Appliances	4,5	150	5.0
7	Mechanical and technological properties agriculture materials	5	90	3.0
8	History and philosophy agriculture techincs	5	90	3.0
9	Standardization and certification machinery and equipment	6	90	3.0
10	Hydro and Pneumodrive s.h.tehniky	6	120	4.0

11	Economic discipline	6.7	180	6.0
12	Machinery and equipment for biotechnology	7	120	4.0
<b>Total (Disciplines offered by students)</b>			<b>1470</b>	<b>49</b>
<b>Total for elective part</b>			<b>2520</b>	<b>84</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training	5,6,7,8	870	29.0
2	Cultural education training	1,2,3,4	180	6.0
3	Teaching practice	2.4	420	14.0
4	Practical training	6	210	7.0
<b>Preparation to diplom project</b>			<b>150</b>	<b>5.0</b>
<b>State certification</b>			<b>60</b>	<b>2.0</b>
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Physics.** Increased knowledge and understanding of phenomena and laws of nature, reflected in classical and modern physics and related to the use of industrial, technology and everyday life to environmental protection and life safety.

**Descriptive geometry and computer graphics.** Formation of knowledge on the formation of geometric objects, and perform reading technical drawings, imaging techniques including computer graphics; teach students to geometric modeling of objects and processes to give them the knowledge and skills required to perform and read drawings for various purposes, such as that carried out by hand or computer, and solving for the pictures, drawings and model engineering geometric problems.

**Higher and Applied Mathematics.** Formation of theoretical knowledge and practical skills on the basis of mathematical apparatus, the main methods of quantitative measurement change of factors affecting any processes, principles of mathematical statistics used in the planning, organization and management of production and technological processes.

**Materials science and TCM.** Provide future skill set of knowledge and skills of fixed assets dimensional processing of structural materials and tools needed for understanding of modern agricultural engineering production.

**Theoretical Mechanics.** To deepen students' knowledge of theoretical material on the basic laws of nature on which settlement schemes create needed in the construction business, but also as a means of education to the future builders skills for scientific generalizations.

**Chemistry.** Submit student basic theoretical issues of physical chemistry and basic concepts of Macromolecular Chemistry.

**Teoreiya mehanizimiv and machines.** To deepen students' knowledge of theoretical material on the basic laws of nature on which settlement schemes create needed in engineering, but also as a means of education for future mechanical engineers skills for scientific generalizations.



**Mechanics of materials and structures.** Forming students' knowledge of strength of materials; Geometric characteristics of flat sections; external and internal forces; the method of sections; diagrams of the internal forces; tensile and compression; mechanical properties of materials; calculation for strength and rigidity at a stretching and compression; basic theory of stress and strain state; strength criteria; shift; torsion; bend; additional questions bending theory; sophisticated resistance; general theorem resilient systems, common methods for determining the movements; statistically undetectable system; calculation of plane curves beams; calculation of thick-walled cylinders and rotating discs; elements of the theory of thin shells; design calculation for the boundary conditions; stability of compressed rods; elastic vibrations; Strength of Materials steps to re-stress variables; payments under shock loads; contact stress; fracture mechanics bases.

**Tractors and cars.** Forming students' knowledge of basic operational characteristics of cars and tractors; Theory cars and tractors; design and calculation of the vehicle; structure and dynamics of internal combustion engines; construction of cars and tractors.

**Agricultural machinery.** The course provides future professionals with deep knowledge of the structure, construction and commissioning for the specific conditions of work agricultural machines, theory and calculation processes and working bodies of machines that are necessary for highly efficient use of means of mechanization in agricultural production, research aimed at improving the existing and new machines.

**Lubricants and other operating supplies.** In the study discipline deals with the theory and practice of fuel and lubricants for machines agricultural production. The course is designed for students to obtain knowledge on the rational use of fuels, lubricants, technical liquids and non-metallic materials, manufacture of fuels and lubricants, their assortments, properties of qualities as affecting the reliability and efficiency of engines units work machines agricultural production, ways of implementing fuels and lubricants not based on oil.

**Interchangeability, standardization and technical measurements.** Forming students' knowledge and skills that allow you to improve the quality of products qualified agricultural engineer, use of standards, regulations interchangeability, metrology and quality control.

**Machine parts.** The study operating principles of calculation and design of machine parts and mechanisms of general purpose and handling equipment. We study kinematic calculations, the basis of calculation for strength and stiffness, design methods, the rational choice of materials.

**Hoisting machinery.** Study structure handling machines and the agricultural production mechanization and automation of agricultural production, methods of calculation and design.

**Machinery and equipment for livestock.** To provide students with knowledge about the structure, management, basic theory and methods of calculation machines and equipment for animal based ahrozootekhnichnyh, sanitary-veterinary and technical and economic requirements and work conditions.

**Mashynovykorystannya livestock.** To acquaint students with the basics of streaming-design production lines in animal husbandry, installation and commissioning, production and technical service, research equipment and processes.

**Mashynovykorystannya in crop.** Training specialist who can competently decide on operation of machines and equipment in conditions of farmers and individual farms, rental companies and peasant unions. The subject of the study is streaming mechanized processes of production of crops, methods of experimental determination and theoretical calculation of basic technical and operational parameters of machine and tractor units and complete plants and their work in setting up producer.

**Technical service machines.** Obtaining theoretical knowledge and practical skills that will be needed in practice: design principles of maintenance of machinery and equipment APC; principles of the industrial and technological base of manufacturing equipment; procedure for installation and commissioning of machinery and equipment APC; principles for determining prospective directions of the agricultural and services service; basis of analysis and research designs of machinery and equipment and evaluation of their technical level; order documentation on the supply of logistics, preparation of reporting documentation, conducting technical examination and registration of complaints; procedure and methods of diagnosing complex machines, flaw details.

**Reliability and repair of machines.** Mastering the future mechanical engineer basics of technological processes of repair of machines and assemblies; get practical skills perform common maintenance operations; mastering the basics of organizing repair facilities and bases of calculation and design of repair facilities.

**Machines and equipment for processing agricultural products.** To provide students with knowledge about the structure, management, basic theory and methods of calculation machines and equipment for processing agricultural products taking into account properties of agricultural materials and technical and economic requirements and working conditions.

**Mashynovykorystannya in the processing industry.** To acquaint students with the basics of streaming-design production lines in the processing industry, construction and commissioning, production and technical service, research equipment and processes.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations disciplines "History of Ukraine and ethnocultural", "Philosophy", "Ukrainian language for professional orientation", "foreign language", "Physical Education", "Safety and life", "legal culture of personality" see. Section 2.1.

### **2.2. Disciplines offered by students**

**Technology of growing, processing and storage SH products.** The development of the system of knowledge development and evaluation of agricultural products, effective implementation of the selection process in the desired direction and organization biologically reasonable and economically expedient production technology, processing and storage of agricultural products.

**Computers and computer technology.** Requires educational and professional program students must be able to: build a comprehensive axonometric drawings and three-dimensional images of objects; intsydentnist solve the problem on two geometric figures (point, line, plane surface); solve problems at the intersection of two geometric shapes (straight, plane surface); find the distance between the geometric shapes and angles between them; law for a given formation projection points to build curves and surfaces; perform cuts and cross sections of complex geometric shapes; find life-size oblique sections; execute engineering and construction drawings for YESKD standards; Know: Principles and methods of construction projection images; positional methods for solving problems; metric methods for solving problems; methods of formation curves and surfaces; YESKD state standards.

**The "machine-field - biological matrix".** Academic discipline studies the basic principles of environmentally sound and cost-effective functioning of the "machine - biological matrix" in terms of vehicles in terms of interaction with the biological

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environment. As a result of the discipline the student acquires knowledge of the elements and indicators that define the system "machine - biological matrix" and methods that improve the functioning of the "machine - biological media" and contributes to the quality of technological and transport operations under the terms of the ecological aspects of the use of mobile agricultural machinery and vehicles.

**Hydraulics and Heating Engineering.** Formation of skills that allow the material to make the right choice considering the mechanical movement of fluid in various natural and man-made environment. Mastering knowledge systems of methods of obtaining, transformation, transmission and use of heat and principle of thermal machines and apparatus intended for this purpose thermodynamics, heat transfer (heat transfer) and hidrohazodynamiky that make up the theoretical foundations of heat engineering.

**Fundamentals Driving and mobile agricultural machinery.** Forming students' knowledge of organizational and methodological foundations of practical training students in the process of driving and mobile agricultural machinery of machinery, technology, economics, planning, organization and management.

**Mechanical and technological properties of agricultural materials.** Formation of skills that allow to make the correct choice of material based agricultural mechanics and technological properties, provide savings in materials, weight; Theoretical Foundations of mastery.

**History and philosophy of agricultural machinery.** Introducing students to further their independent deliberation history increment of scientific knowledge within the individual branches of natural sciences, humanities, social and technical sciences under certain historical stages of development of science and culture in general in order to master the intellectual wealth of the world scientific culture, which is stored in history and the which is based modern science.

**Standardization and certification machinery and equipment.** Sets out the general principles of standardization, metrology and certification of agricultural machinery and equipment. Deals with the laws of Ukraine on standardization, metrology and certification and ISO Basis of normative documents for formation of specifications, processes for the manufacture of machinery and equipment, quality control cards and company standards.

**Hydro Pneumodrive and agricultural machinery.** The formation of future professionals skills and knowledge of modern methods of design, production and operation of modern machines agricultural production, which are equipped with hydraulic and pneumatic.

**The economy of agricultural production.** The formation of future professionals of the agricultural sector of the special knowledge and practical skills in the field of Agricultural Economics, Planning indicators of industrial and economic activity, the use of agricultural economic management organization considering factors external and internal environment.

**Machinery and plant biotechnology.** To provide students with knowledge about the structure, management, basic theory and methods of calculation machinery and equipment. The development of a system of knowledge on the theoretical and practical foundations for the study of biotechnology processes with environmental focus and addressing related environmental challenges utilization (biopererobky) waste and rubbish, the degradation of the different nature of pollution, ensure the production of environmentally friendly products based on cheap and available raw materials.

**Bachelor**  
**in specialty «TRANSPORT TECHNOLOGIES (MOTOR TRANSPORT)»**  
**field of knowledge "Transport "**

Form of Training:	Licensed number of persons:
– fixed-time	100
– correspondence	100
Terms of Learning	4 years
Credits	240 ECTS
Language of instruction	Ukrainian, English
Qualification graduate	Master (Technical), Researchers in Transport Sector

**Concept of training**

Providing knowledge, skills and professional skills in the field of next generation transport technologies in the agricultural and environmental sectors 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.

**Practical training**

Passage education (trial, on management techniques) and industrial (professional and technological, production in transport companies) recommended practices 89 enterprises.

**Proposed Topics for Bachelor theses**

1. Development (improvement) of traffic on the street settlement using elements of the automated traffic control system.
2. Development of rational international routes of vehicles for the carriage of agricultural goods.
3. Development of transport and process crops for harvesting company (association management, etc).
4. Development of recommendations to improve the safety of vehicles and pedestrians on the road along the street (Avenue, Square, etc.) the settlement.
5. Development of transport and production process when transporting farm animals in the enterprise (association management, etc).
6. Development of transport and production process at transportation of poultry in terms of the company (association management, etc).
7. Development of transport and production process for the carriage reproductive material of farm animals and poultry in terms of the company (association management, etc).
8. Development of measures to improve the use of vehicles in ATP.
9. Development of transport and production processes during transportation of agricultural products (milk and milk products, bread and bakery products, etc.) in terms of business.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

### **Employment of Graduates**

Receives basic higher education and can work in positions that correspond to the 3rd and 4th qualifying levels under state classifier professions: specialist logistics, logistics expert, a technical expert in management, transport operations inspector, the inspector of traffic safety, inspector of safety and quality, detachment chief vehicle engineer of the use of vehicles, technical service engineer.

**Bachelor`s Program and Curriculum in Specialty  
«Transport Technologies (Motor Transport)»**

№	Name of Academic Discipline	Semester	Scope	
			hours	ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Physics	1	90	3.0
2	Higher Mathematics	1,2,3	330	11.0
3	Basics of customs legislation	2	90	3.0
4	Vehicles	3	120	4.0
5	Chemistry	2	90	3.0
6	Probability and mat.statystyka	3	120	4.0
7	Operations research in transport systems	4	210	7.0
8	Shipping trasologii	4	90	3.0
9	General course of transport	4	120	4.0
10	Principles and Control Theory	5	240	8.0
11	Basic theory of transport processes and systems	5	210	7.0
12	Organization of traffic	5	120	4.0
13	Operational properties of roads and buildings	5	90	3.0
14	Information Systems and Technology	6	240	8.0
15	Freight transport	6	240	8.0
16	Technologically transport processes in agriculture production	6	120	4.0
17	Passenger transportation	7	210	7.0
18	Interaction of transport	7	180	6.0
19	Technical means of traffic	7	120	4.0
20	Fundamentals of economy of transport ( tariffs and tariff system)	7.8	180	6.0
21	Tansportne right	7.8	150	5.0
22	Logistics	8	120	4.0
23	Rural Transport Planning	8	90	3.0
24	Vehicle safety	8	90	3.0
25	Organization of international road	8	90	3.0
Total student's choice			3750	125
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History and ethnocultural Ukraine	1	90	3.0
2	Ethnocultural	1	90	3.0
3	Ukrainian language for professional purposes	1	90	3.0
4	Foreign Language	1	180	6.0
5	Physical educationphilosophy	1,2,3,4	120	4.0
6	Philosophy	5	120	4.0
7	Social sciences	6	210	7.0
8	Legal culture of personality	2	90	3.0
9	Safety and life	2.8	90	3.0
Total (Disciplines offered by University)			1080	36
2.2. Disciplines offered by students				
1	Engineering and Computer Graphics	1	90	3.0



2	The " machine - biological matrix "	2	90	3.0
3	History and philosophy s.h.tehniky	2	90	3.0
4	Technical mechanics	2	90	3.0
5	Basics of Criminalistics	2	90	3.0
6	Hygiene and features of the transport of animals and animal products	3	90	3.0
7	Eksperyza of accident	3	90	3.0
8	Knowledge of cargo	3	90	3.0
9	Hoisting machinery	3	90	3.0
10	Lubricants and other operating supplies	4	90	3.0
11	Performance Features vehicles	4	90	3.0
12	Fundamentals of Engineering Management	6	90	3.0
13	Traffic rules	4	90	3.0
14	Maintenance vehicle	7	90	3.0
15	Technology storage of agricultural products during transportation	7	90	3.0
<b>Total (Disciplines offered by students)</b>			<b>1350</b>	<b>45</b>
<b>Total for elective part</b>			<b>2430</b>	<b>81</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training	5,6,7,8	870	29.0
2	Cultural education preparing	1,2,3,4	180	6.0
3	Teaching practice	2.4	420	14.0
4	Manufacturing Practice	6	210	7.0
<b>Preparation diploma project</b>			<b>150</b>	<b>5.0</b>
<b>State certification</b>			<b>60</b>	<b>2.0</b>
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

### Annotations of disciplines in the curriculum

#### 1. Standard academic disciplines

**Physics.** Increased knowledge and understanding of phenomena and laws of nature, reflected in classical and modern physics and related to the use of industrial, technology and everyday life to environmental protection and life safety.

**Higher mathematics.** Formation of theoretical knowledge and practical skills on the basis of mathematical apparatus, the main methods of quantitative measurement chance of factors affecting any processes, principles of mathematical statistics used in the planning, organization and management of production and technological processes.

**Basics of customs legislation.** Mastering the students basic theoretical and methodological foundations of customs regulation of foreign economic activity in the integration of Ukraine into the world community, as well as providing them with knowledge of tariffs as a tool to implement foreign policy and national security of Ukraine, the formation of the state budget.

**Vehicles.** Forming students' knowledge in the field of transport, review of the research and development of various types of vehicles. Specifications, parameters and indicators of vehicles, their design features and operation.

**Chemistry.** Submit student basic theoretical issues of physical chemistry and basic concepts of Macromolecular Chemistry.

**Probability and Mathematical Statistics.** Formation of theoretical knowledge and practical skills on the basis of mathematical apparatus of the theory of probability and mathematical statistics, basic methods of quantitative measurement chance of factors affecting any processes, principles of mathematical statistics used in the planning, organization and management of production and technological processes .

**Operations research in transport systems.** Formation of theoretical knowledge and practical skills formalize control problems in transportation systems using specialized optimization methods.

**Transport trasologii.** Provide students with a system of theoretical knowledge and practical skills to form a correct application of the law in the expert trasoloha.

**General course of transport.** Mastering the concept of "integrated transport system", "integrated transport network", and the acquisition of knowledge on the importance of all forms of transport for the timely and quality to meet the needs of industries and population in traffic, increase economic efficiency of the transport system.

**Principles and theories of management.** Forming students' knowledge on the general methodology of focus, methods, systems theory and systems analysis applied in the management of organizations and decision-making regarding administrative, financial and production problems, the theory of purposeful systems, their modeling and research, targeted for use in transportation technology .

**Basic theory of transport processes and systems.** Formation of the conceptual apparatus systematology, acquiring knowledge about the mathematical foundations of describing transport systems, modeling and analysis of their functioning within the system approach; acquiring the necessary skills application of knowledge to solve practical problems. The subject of discipline is the process of transport for passengers and goods and resources for its operation.

**Operations research in transport systems.** Formation of theoretical knowledge and practical skills formalize control problems in transportation systems using specialized optimization methods.

**The organization of the road.** Forming students theoretical and clear legal knowledge and skills for surveillance of road transportation of dangerous, oversized and heavy cargo and practical skills to use them in practice SAI; deep understanding of the importance of traffic management and surveillance of roads, flawless performance of official duties, self-help tasks facing the traffic police Internal Affairs of Ukraine, and functions related to the implementation of traffic management services; identifying and documenting crimes related to the maintenance and operation of roads, buildings and road crossings, transportation of dangerous, oversized and heavy cargo.

**Operational properties of roads and buildings.** Learn the basics of technology and production organization roads and buildings, structures and products; determine the direction of the production base; teach the technical and economic indicators perform selection flowsheets, raw materials and equipment with the use of operational properties of roads and buildings.

**Information systems and technology.** Forming students' knowledge of sustainable building modern information systems and technology, and develop skills to create databases using modern database management systems and data banks.

**Freight transport.** Forming students' academic and professional expertise in organizing, planning and managing various kinds of cargo transportation. Subject dystsiplyny is a process of cargo units, transportation of goods from shipment to places of consumption and processes to ensure their implementation.

**Technologically transport processes in agricultural production.** Learn the basics of technology and technology-organization of transport processes in agricultural production, to teach the technical and economic indicators to justify the choice to carry out technological schemes of raw materials and equipment.

**Passenger traffic.** Formation of knowledge and understandings conceptual foundations of the organization and management of passenger traffic, the acquisition of skills for process control passenger traffic. The subject is discipline techniques and methods of organization of passenger transport.

**Interaction of transport.** Study of the main provisions of the complex problems of development and interaction between different modes of transport as a unified system. The subject of discipline are the ways of interaction between different modes of transport in transport nodes. According to this expert in the field of transport technologies should know: bases the development process of delivery, method of transport process operational management, fundamentals of interaction modes of transport, estimate the interaction of transport networks and nodes; be able to: analyze in the transport of intermodal traffic, organize planning and management to determine the costs and benefits to find ways of further development, to determine the characteristics of traffic in mixed traffic, to determine compliance with transportation and processing facilities of interacting modes of transport and to choose the means to harmonize their performance, analyze Technology Combined transport in order to establish areas of use, costs and benefits to find ways of further development, predict traffic development prospects in mixed traffic; have an understanding of the organization of control over the implementation of the process, the organization of monitoring and control and execution of certain operations of the complex as a whole. Technical means of traffic management. Explore Foundations of placement of road signs, markings use in accordance with road conditions, operation of means of control, road and fence rails devices, materials and equipment for marking.

**Fundamentals of transport economics.** Getting students the knowledge, skills and abilities that allow to structure and solve the economic problems of transport and thus ensure its competitiveness in the transport market.

**Transport Law.** The objective of discipline is legal provisions extrapolation to the field of industrial relations as preparing qualified obtaining them requires the relevant set of legal expertise and practical skills in international and national transport law needed to work on national and international markets of transport services, as well as the formation of his understanding of contemporary issues legal organization of transport, international legal norms and principles governing the relations of the transport market.

**Logistics.** Summary course provides students acquisition of theoretical knowledge in management of logistics, means of production and commodity-material stocks transport companies, trade organizations and databases in the marketplace.

**Transport planning of rural areas.** Mastering the basics of designing residential areas of the village, the industrial zone of the village, street and backbone of the village, landscape and recreational areas, rural infrastructure.

**Security vehicles.** Learn the basics for safe operation and use of vehicles, studying the theoretical foundations of traffic safety on the streets, etc., studies the movement of vehicles.

**Organization of international road transport.** Learn the basics of technology and organization, definitions, basic provisions, state road transport in Europe, the role of the transport factor in the economy of Ukraine, international freight transport in Ukraine, problems of improving the competitiveness of road transport Ukraine, information transport, the general concept of the document.

## 2. Elective academic disciplines

### 2.1. Disciplines offered by University

Annotations disciplines "History of Ukraine and Ethnocultural", "Philosophy", "Ukrainian language for professional orientation", "foreign language", "Physical Education", "Safety and life", "legal culture of personality" see. Section 2.1.

### 2.2. Disciplines offered by students

**Engineering and computer graphics.** Formation of knowledge on the formation of geometric objects, and perform reading technical drawings, imaging techniques including computer graphics; teach students to geometric modeling of objects and processes to give them the knowledge and skills required to perform and read drawings for various purposes, such as that carried out by hand or computer, and solving for the pictures, drawings and model engineering geometric problems.

**The "machine-biological media"** Provide scientific principles and teach future specialist car transporter synthesis and properties of biological matrix when used in industrial processes transport.

**History and philosophy of agricultural machinery.** Introducing students to further their independent deliberation history increment of scientific knowledge within the individual branches of natural sciences, humanities, social and technical sciences under certain historical stages of development of science and culture in general in order to master the intellectual wealth of the world scientific culture, which is stored in history and the which is based modern science.

**Technical mechanics.** To deepen students' knowledge of theoretical material on the basic laws of nature on which settlement schemes create needed in transport technologies, but also as a means of education in the future of transport skills for scientific generalizations.

**Basics of criminology.** Formation of skills that allow to make the right choice simulate crime investigation techniques previously developed by the plot, rationally determine the sequence of investigative and search actions, disclosure practices, investigation and prevention of crime, the mechanism of the events that took place, the disclosure of internal connections and contradictions in the studied phenomena and facts transport.

**Hygiene and features of the transport of animals and animal products.** 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. Helps master the normative documents and sanitary requirements for varieties of the vehicles involved in the transport of animals and animal products, which can be used in practice.

**Examination of the accident.** Study position detection and investigation of crimes adjudication process of proof, proof in proceedings when the accident to establish the facts of the past, information that fall dodiznavacha and investigator in the form of information requiring special discovers, research and interpretation, implementation expertise ensure the establishment of objective truth in the crime of traffic accident.

**Knowledge of cargo.** He studies the properties of objects and materials related to the process of transportation.

**Hoisting machinery.** Study structure handling mechanization and automation of agricultural production, methods of calculation and design.

**Lubricants and other operating supplies.** In the study discipline deals with the theory and practice of fuel and lubricants for road transport. The course is designed for students to obtain knowledge on the rational use of fuels, lubricants, technical liquids and non-metallic materials, manufacture of fuels and lubricants, their assortments, properties of qualities as affecting the reliability and efficiency of work of engines units of cars by introducing fuel and lubricants for not petroleum-based.

**Performance Features vehicles.** Consider the basic laws of motion of vehicles, as well as their relationship with the specifications, design parameters and conditions of movement of vehicles.

**Fundamentals of Engineering Management.** Formation of modern management thinking, the basics of system management organizations of any species - adequate decision-making on the future place of work. Forming students-Transport Knowledge of theoretical foundations and practical skills of management and marketing.

**Maintenance vehicles.** To study the main factors that determine the organization of maintenance and repair of vehicles, economic and geographical characteristics of the city (district) mode of production divisions, selection and adjustment of standards for the design of transport, the calculation of the production program of the company TOR, the calculation of the production program of maintenance and repair by the number of technical acts, the calculation of the production program of maintenance and repair work units, the calculation of the production program ancillary works.

**Technology of storage of agricultural products during transportation.** To give students a basic knowledge of the technologies of agricultural products plant and animal origin to the transportation and direct transport various technical means of modern technologies with minimal losses; teach students to find and implement the most effective technology and mechanization of transportation of agricultural products; justify hygiene requirements for the quality of raw materials and finished products during transportation of agricultural products.

## 2.9. FACULTY OF CONSTRUCTION AND DESIGN

**Dean** – Ph.D. (Technical Sciences), associate professor **Zynoviy Ruzhylo**

Tel.: +38 (044) 527-81-29 E-mail: [dekanat\\_kd@ukr.net](mailto:dekanat_kd@ukr.net)

Location: building № 11, room 305

The faculty organizes and coordinates the educational process of bachelors in the following specialties:

### ***133 Industrial Mechanical Engineering***

Graduating departments:

Constructing of Machines and equipment

Tel.: +38 (044) 527-87-34, E-mail: [machinebuild\\_centre@twin.nauu.kiev.ua](mailto:machinebuild_centre@twin.nauu.kiev.ua)

Head of department – Doctor of Technical Sciences, professor Vyacheslav Loveykin

Tractors and automobiles and bio energy system

Tel.: +38 (044) 527-88-95 E-mail: [gagolub@ukr.net](mailto:gagolub@ukr.net) Head of department – Doctor of Technical Sciences, professor Golub Gennady Anatolievich

Reliability of Machinery

Tel.: (044) 527-87-71 E-mail: [reliability\\_chair@twin.nauu.kiev.ua](mailto:reliability_chair@twin.nauu.kiev.ua)

Head – Dr. Sc., Professor Anatoliy Boyko

Mechanics

Tel.: +38 (044) 527-83-25 E-mail: [berezovyi@nubip.edu.ua](mailto:berezovyi@nubip.edu.ua)

Head of department – Ph.D. (Technical Sciences), associate professor Mykola Berezovyi

Agricultural machinery and systems engineering them. acad. P.M Vasilenko

tel. (044) 527-85-37 E-mail: [sgms@ukr.net](mailto:sgms@ukr.net)

Head of department - PhD Engineering Sciences, Docent, Gumeniuk Iurii Olehovich.

### ***192 Construction and Civil Engineering***

Graduating departments:

Technology and Organization of Building

Tel.: (044) 527-85-78 E-mail: [biult\\_chair@twin.nauu.kiev.ua](mailto:biult_chair@twin.nauu.kiev.ua)

Head - Dr. Sc., Professor Olexander Davydenko

Mechanics

Tel.: +38 (044) 527-83-25 E-mail: [berezovyi@nubip.edu.ua](mailto:berezovyi@nubip.edu.ua)

Head of department – Ph.D. (Technical Sciences), associate professor Mykola Berezovyi



**Bachelor**  
**in specialty «INDUSTRIAL MECHANICAL ENGINEERING»**  
**field of knowledge «Mechanical engineering and processing of materials»**

Form of Training:	Licensed number of persons:
– full-time studying	170
– part-time studying	120
Duration of studying:	
– full-time studying	4 years
– part-time studying	5 years
Credits	240 ECTS
Language	Ukrainian, English
Academic degree	Bachelor of Engineering

### **Conception of training**

Today agroindustrial production requires the presence of multifunction machines and equipment. Such machines can be created only at presence of highly skilled staff – engineers-designers. Training of engineers-designers is based at high level of teaching of fundamental and general technical disciplines, and also knowledge of perspective development of agricultural machines constructions.

### **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 “Velykosnytynske 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”.

### **Proposed Topics for Bachelor theses**

1. An improvement of oil filter in the diesel biofuel production line;
2. An improvement of methane-tank construction for the biogas production;
3. Development of machine for trees transplantation;
4. Development of turn mechanism of stationary wrecker crane;
5. An improvement of nebulizing device of sprinkler of the field cultures for liquid mineral fertilizers application.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

### **Employment of Graduates**

The enterprises of the special purpose of specialist training and bases of practical studying are offered for further employment or at leading enterprises of agroindustrial and nature protection industries of economy of Ukraine.

### Bachelor`s Program and Curriculum in Specialty "Industrial Mechanical Engineering"

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Higher mathematics	1-3	300	10
2	Chemistry	1	90	3
3	Informatics and computer equipment	1, 2	90	3
4	Descriptive geometry	1	90	3
5	Physics	1, 2	150	5
6	Applied mathematics	4	90	3
7	Theoretical mechanics	2, 3	180	6
8	Material sciences	3, 4	150	5
9	Technology of constructing materials	2, 3	120	4
10	Mechanics of materials and constructions	3, 4	210	7
11	Interchangeability, Standardization and technical measuring	4, 5	150	5
12	Theory of mechanisms and machines	4, 5	240	8
13	Engineering and computer graphics	1-3	180	6
14	Mechanical and technological properties of agricultural materials	5	90	3
15	Parts of machines	5, 6	210	7
16	Machines and equipment for crop production	5, 6	180	6
17	Basis of machines constructions for animal production	6, 7	180	6
18	Machinery and equipment for bioenergetics	6	90	3
19	Hydraulic driving devices of agricultural technics	6	120	4
20	Heating engineering	6	90	3
21	Dynamics and durability	5	90	3
22	Professional orientation	1	90	3
23	Technology of mechanical engineering	4-6	210	7
24	Basis of constructing of mobile power vehicles	6, 7	210	7
25	Lifting and transporting machines	7	90	3
Total for standard part			3690	123
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Sociology and political science	7	90	3
2	Philosophy	4	90	3
3	Іноземна мова	1, 2	150	5
4	History of Ukraine	1	90	3
5	Ukrainian for professional purposes	2	90	3
6	Basis of scientific researches	7	90	3
7	Basis of electrical engineering	2	90	3
8	Labor protection	8	120	4
9	Hydraulics	4	90	3
10	Physical training	1-4	-	-
11	Facilities for automation of technics	7	90	3
12	Basis of economic theory	8	90	3
Total (Disciplines offered by University)			1080	36
2.2. Disciplines offered by students				
2.2.1. Specialization „Machines and equipment of agricultural productions”				
1	Technology of animal products production	5	90	3
2	Technology of crop products production	5	90	3
3	Designing of agricultural machines	8	150	5
4	Ergonomics of agricultural machines	8	90	3
5	Computer design of agricultural processes	8	180	6
6	Fuels, oils and other consumables	3	120	4
7	Tillage mechanics	7	90	3
8	Theory of cutting, metal-working and instruments	4	150	5

9	Bioenergy systems in livestock	3	90	3
10	Reliability of agricultural technics	7, 8	180	6
11	Constructing of agricultural machines	7, 8	360	12
12	Biosystems engineering	8	90	3
13	Fundamentals of technics control	4	90	3
<b>Total for Specialization</b>			<b>1770</b>	<b>59</b>
<b>2.2.2. Specialization «Equipment of forest complex»</b>				
1	Timber plant species	7	90	3
2	Machines and equipment for forestry	7, 8	240	8
3	Theory of cutting, woodworking machine-tools and equipment	4	180	6
4	Fuels, oils and other consumables	3	120	4
5	Woods cutting and transporting	3	90	3
6	Designing of machines for forestry	7	90	3
7	Using of machines for forestry	8	120	4
8	Standardization and certification of machines	5	90	3
9	Quality measuring of woods	4	120	4
10	Constructing of machines for forestry	8	270	9
11	Biosystems engineering	8	90	3
12	Reliability equipment of forest complex	7	150	5
13	Technical maintenance of machines and equipment of forest complex	8	120	4
<b>Total for Specialization</b>			<b>1770</b>	<b>59</b>
<b>Total (Disciplines offered by students)</b>			<b>1770</b>	<b>59</b>
<b>Total for elective part</b>			<b>2850</b>	<b>95</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training course	5-8	675	22,5
2	Academic Practice	2, 4	270	9
3	Production Practice	6	180	6
4	Driver training	-	90	3
<b>Bachelor Thesis writing (Graduate thesis or Project)</b>			<b>180</b>	<b>6</b>
<b>State Attestation</b>			<b>30</b>	<b>1</b>
<b>Total for Specialty (without Military training course and driver training)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Higher mathematics.** (The study of this discipline allows learning to use mathematical (analytical) methods for description and study of physical, technical, technological and other processes. Knowledge of the systems of linear equalizations, basis of vector algebra, equalizations of line and plane in space, basic formulas and theorems of differential and integral calculation, substantive provisions and methods of decisions of differential equalizations will allow to decide and analyse the systems of linear equalizations, decide the tasks of analytical geometry and mathematical analysis, apply knowledge in practice, ground decision, conduct the analysis of decision, apply mathematical methods to the decision of the applied technical and technological tasks.)

**Chemistry.** (Fundamental discipline «chemistry» provides students of knowledge about composition, structure, properties and transformations of matters, which are basis of construction materials, and knowledge of terms of protracted, saving, ecologically – safe exploitation of machines and systems of natural resources using. The study of chemistry provides a basis for training students professionally – the oriented and special disciplines and it promotes forming of modern world view of a man.)

**Computer science and equipment.** (The informative processes, methods and facilities of getting, transformation, transmission, storage and usage of information, application of information technologies are studied in the discipline course. The purpose of discipline study is forming of modern level of informative and computer culture, grant to the students and fixing by them knowledge of basis of computer science and computing engineering, acquisition of practical skills of work on a modern computer technique, and also ability to apply them during work with the modern computer systems of treatment of information.)

**Descriptive geometry.** (Discipline studies dimensional forms and methods of their image on a plane, examines the methods of construction of images and methods of decision of dimensional tasks by these images. The study of discipline allows developing dimensional thought and capacities for the analysis of geometrical forms, forms skills of construction of volume graphic models, operation by draft as the mean of graphic information transfer.)

**Physics.** (The discipline studies properties of the material world, a variety of physical phenomena, principles of co-operation and motion of material bodies, and also processes and mechanisms for their control, called to form students' analytical and modelling thinking. A student acquires physical knowledge during the process of mastering of physical concepts, principles, and theories for the further learning general technical disciplines.)

**Applied mathematics.** (The applied mathematics which is based on a theory of chances and mathematical statistics is the important constituent of mathematical education of future specialists. The purpose of discipline – to teach future specialists bases of modern mathematical tools, necessary for an analysis and decision of practical tasks, to assist in forming the students' skills in mathematical design and using of mathematical methods to solve applied tasks.)

**Theoretical mechanics.** (The discipline studies general acts and principles of mechanical motion, equilibrium of material objects, mechanical systems and existent methods and facilities of solving tasks, drafting of calculation models of the real technical objects.)

**Material science.** (Principles, which determine structure and properties of materials depending on their composition and terms of treatment, are studied in this course. The course allows to study the modern high-efficiency methods of increasing the properties of durability, corrosive firmness, heating- and frost resistant alloys, effective methods of treatment of surface of wares with the purpose of substantial increasing of anticorrosive firmness, development and use of new polymeric and composition materials with the set complex of properties.)

**Technology of construction materials.** (This discipline studies basic information about the methods of receipt of construction materials and methods of its physical and chemical, technological and mechanical treatment with the purpose of providing of necessary properties and forming of wares in the proper constructions of machines and mechanisms.)

**Mechanics of materials and constructions.** (The discipline studies the methods of engineering calculations of machine details, elements of construction on durability, inflexibility and firmness in the conditions of action of the static and dynamic loadings recognition change of temperature and processes, related to duration of exploitation at simultaneous reliability, longevity and economy.)

**Interchangeability, standardization and technical measuring.** (The discipline purpose is studying principles of organization of machine-building production on the basis of interchangeability, acquaintance with the operating norms of precision and quality, capture methods and methods of their control, studying bases of standardization and quality management of products in machine industry. Mastering of discipline will allow to

the future engineers to provide the necessary level of planning of machines and technological rigging due to using of decisions which are based on principles of interchangeability and standardization.)

**Theory of mechanisms and machines.** (The discipline studies bases of research, calculation and planning of the mechanical systems, devices, mechanisms and equipment in the conditions of editing, exploitation and unitization of working machines in modern agricultural building, and also general methods of structural, kinematics and dynamic analysis and synthesis of mechanisms and machines of agricultural technique.)

**Engineering and computer graphic arts.** (The questions of imaging by projection method of technical wares, units and details, methods of details connection; the rules of presentation of information of their making technology and application conditions are studied in discipline. The studying of standards, related to the drafts of details, is carried out in the process of implementation of graphic tasks.)

**Mechanical and technological properties of agricultural materials.** (It is complex discipline which studies physical and mechanical properties of such agricultural materials, as soil, fertilizers and material of hypogenous taking into account the changes of temperature and humidity.)

**Parts of machines.** (It is base technical discipline which studies methods, rules and norms of calculation and constructing of typical details and frame-clamping units of machines. Bases of calculations are also studied on durability and inflexibility, methods of constructing, rational choice of materials and methods of connection of details. The task of course is to get skills of calculation and constructing of machine details and units, to master methods, rule and planning norms, which are provided of making the reliable and economic constructions, and also development engineering thinking of students.)

**Machines and equipment for crop production.** (The constructions of machines, types and structure of their workings organs and occasions, process of co-operation of worker of parts, are examined with the processed material and environment, and also technological adjusting and classification of machines and equipment which is used in a plant-grower.)

**Basis of machines constructions for animal production.** (It is complex discipline which studies the value of mechanization of technological processes of production of goods of stock-raising and zootechnic requirements to the processes and hardware, that they are executed. The question of structure, principle of action, classification and estimation, and also basis of constructing and calculation of machines and equipment of stock-raising enterprises is considered.)

**Machinery and equipment for bioenergetics.** (The discipline involves studying the theoretical principles and methods of machines and equipment parameters calculation for the production of renewable energy from biomass, the acquisition of practical skills for working processes and adjustment of engineering tools for making and effective using of biofuels in agricultural sector.)

**Hydraulic driving devices of agricultural technicians.** (Discipline studies structures, theories of workings processes and rules of exploitation of hydraulic driving devices, which are needed for the high-efficiency use of agricultural technique, high-quality service and repair, purposeful perfection. The study of construction, principle of action, adjusting, hydrokinetics, characteristics of speed and power of hydraulic driving devices used in agricultural machines and bases of theory is foreseen to the calculation of hydraulic devices.)

**Heating engineering.** (The discipline studies features and technical aspects of transformation of natural energy resources (organic and nuclear fuel, warmth of bowels of the earth, energy of sun, water and wind and others) in the directly in-use forms of energy (warmth, work and their derivatives, for example – electric energy). Discipline includes technical thermodynamics, theory of heating- and mass-transfer, examines heat-engines



and refrigeration devices, compressors and ventilators, fuel burning equipment and caldron settings.)

**Dynamics and durability.** (It is complex discipline, which studies the methods of engineering calculations of details of machines, elements of construction on durability, inflexibility and firmness at additional influence of forces of inertia, which arise up at the dynamic loading and swaying processes. The separate section of this discipline is devoted to the methods of engineering calculations of details of machines and elements of construction on durability, inflexibility and firmness at presence of cracks.)

**Professional orientation.** (The course reveals the essence of training specialists in the speciality "Mechanical engineering» develops an understanding of the specifics of the field of "Machinery & materials", acquaints students with their capabilities in order to offer them to choose one of the most appropriate professions taking into account the needs of production.)

**Basis of constructing of mobile power tools.** (The discipline gives to the future engineers necessary knowledge from bases of theory and methods of substantiation of parameters and indicators of tractors and cars and their engines, definition of dependence of their performance against speed and power indicators, construction and working conditions, methods and equipment for testing of tractors and automobiles, basic tendencies and directions of their improvement, acquires the skills to formulate requirements to the properties and operating characteristics of tractors and cars depending on the operation conditions, perform analytical substantiation of their main parameters, taking into account the perform analytical substantiation of their main parameters under particular conditions of agricultural production and the achieved level of autotractor industry, independently solve the problems of the heat and dynamic calculation of automotive engines and traction and dynamic calculations of tractors and cars.)

**Technology of mechanical engineering.** (The discipline studies the methods of obtaining and processing of blanks to ensure high quality of products, economy of materials, high productivity. It includes the development of technological processes (routing and operating) the receipt and processing of work pieces, that make various of structural materials, their technical and economic characteristics, the study of the schematics of equipment and tooling, design shops of machine-building plants issues manufacturability of designs blanks, parts, machines and equipment, taking into account methods of their obtaining, technological methods of increase of reliability of machine.)

**Lifting and transporting machines.** (At the study of discipline the structure of different types of a lifting-transport equipment, methods of planning of modern facilities of mechanization and automation of constituent and movable operations, is examined, in a that number conveyers, conveyers, robots, manipulators, and also facilities of small mechanization, method of calculation, constructing, planning and exploitation of machines and mechanisms which execute lifting-transport operations.)

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines "Ukrainian for Professional Purposes", "History of Ukraine", "Foreign Language (English, German, French, Spanish)", "Philosophy", "Physical Training" see Section 2.1.

**Sociology and political science.** (The course studies principles of development and functioning of political life of society, mechanisms of political power, management of political processes. The basic stages of development of world and domestic political idea, politician and political relations, power, process, political system of society, political mode, political parties, public organizations and motions in socio-political life of society,



personality and policy, political culture, world political process are examined in discipline. There are studied a structure and functions of sociology, social structure of society (social class, ethnic, social, cultural and professional groups), social relations and social policy, problems of social justice, special sociological theories (sociology of labour and management, sociology of policy, sociology of public opinion, sociology of education), methodology of sociological researches.)

**Basis of scientific researches.** (The discipline studies the bases of scientific activity, in particular concept of method and methodology and their role in scientific cognition, stages of research work, question of organization of experiment execution, basis of inventing and also methods of the statistical processing of experimental data.)

**Basis of electrical engineering.** (The main task of the course is a study of bases of power supply, electromechanic and facilities of electricity safety. During studying student masters basic principles, applied at the analysis of electric circles, basic methods of analysis of electric circles, seizes the general method of construction of scheme and mathematical models of electrical engineering chains, able to analyze typical electrical engineering chains at typical external influences, has practical skills of analytical, numeral and experimental research of basic processes which take place in electrical engineering chains, knows rules and charts of power supply, electrical driving devices and safety of electricity.)

**Labour protection.** (In discipline legal and organizational questions of labour protection, dangerous and harmful factors of production environment and methods of their decline to the normative sizes, bases of fire protection safety and safety of electricity with the purpose of prophylaxis of accidents and professional diseases on a production are considered. The purpose of discipline study is a theoretical and practical preparation of specialists, which on the basis of the got knowledge would be able to develop and inculcate the safe terms of labour on the workplaces of workers of Agrarian complex, construct the safety of hardware. A task of discipline is preparation of future specialists, able to inculcate labor protection decisions, directed on the improvement of terms of labour, decline of traumatism and professional diseases in industry of Agrarian complex, increase of capacity.)

**Hydraulics.** (In the cycle of disciplines the basic physical and mechanical properties of liquids, substantive provisions of hydrostatics, hydrodynamics are marked. The existing structures of hydraulic machines, basis of hydraulic driving devices are studied. The planning and calculation of the agricultural water systems are conducted.)

**Facilities of automation of agricultural technicians.** (The purpose of course is to obtain knowledge on questions the features of construction and work of separate elements and systems of electrical equipment: principles and facilities of power supply, construction of facilities of lamplight and methods of its calculation, principles of construction and calculation of the electric heating and electrotechnology, construction of systems of electromechanic and use of separate types of electromechanic in a modern agricultural production.)

**Basis of economic theory.** (Economic theories and principles, relations and objective principles of development of public production, market theory and mechanism of its functioning, basis of enterprise, land rent are studied. There are analysed the general problems of transitions of Ukraine to social-market economy and its integration to world economy.)

## **2.2. Disciplines offered by students**

### **2.2.1. Specialization „Machines and equipment of agricultural productions”**

**Technology of animal products production.** (Discipline is included in the block of disciplines after the choice of student, which form a bachelor, capable on the basis of knowledge of biological features of agricultural animals and progressive technologies of purveyance of forage and technologies of production of milk, beef, pork, products of the pig breeding and sheep breeding to get the products of high quality with the least charges of forage and labour. In discipline the biological features of agricultural animals, progressive technologies of purveyance of forage and technology of production of different types of products of stock-raising, zootechnic requirements, are examined to the machines, equipment and facilities of mechanization and automation on stock-raising farms and complexes.)

**Technology of crop products production.** (A course is occupied by a central place in agricultural production and built on principles (principles) of biological science, which studies the features of development of plants, their requirement to the terms of environment. On principle it is important to capture the complex of modern knowledge and skills, which allow to promote the productivity of agricultural cultures, improve quality and stored of products on the basis of knowledge of biology of cultures in relation to concrete ground-climatic terms, a future engineer, and also effectively to use ground-climatic resources and guard of environment.)

**Design of agricultural machines.** (In an educational course disciplines are examined substantive provisions of design are sciences about the artistic constructing of technique, his category, their property and quality. Facilities and methods of prosecution are studied of form, composition of machine; skills of development of characters of functions of control and management are obtained; students meet with the right of ownership on developments in industry of design and bases of its defence.)

**Ergonomics of agricultural machines.** (In an educational course disciplines are examined substantive provisions of ergonomics – scientific and practical discipline, which studies activity of man, instruments and facilities of its activity, environment in the process of their co-operating with the purpose of providing of efficiency, safety and comfort of vital functions of man. Influence of psychical tension, fatigue, emotional factors and personal qualities of man is investigated on efficiency of labour activity. The features of perception, attention, memory, thought of man are studied, it agile vehicle, possibility of perception and redoing of information.)

**Modelling of agricultural processes.** (Bases of design of agricultural processes on the computer are considered, basic concepts and determinations are set, and the methods of application of computer are investigated for management processes in the production.)

**Fuel, oil and other consumables.** (The discipline studies theoretical and practical questions of fuel properties, lubricants and other consumable (paints, adhesives, interior materials and the impact of the quality of technical and economic indicators of machines and equipment of agricultural and forestry production; develops the skills of definition of the basic indicators of the quality and selection of suitable varieties and brands of petroleum products, special liquids and other consumables.)

**Tillage mechanics.** (The methods of formalization of agricultural materials and environments and methods of construction of equalizations which describe co-operating with them of workings organs of machines of Agrarian complex with the purpose of determination of kinematics and dynamic parameters of workings organs are examined.)

**Theory of cutting, metal-working and instruments.** (The discipline studies a concept and deadlines for processing by cutting, physics and mechanics processes, construction and geometry of cutting tools and materials for their manufacture, construction of metal-cutting machines and accessories to them, and the types that do not run on them with a substantiation of rational cutting modes, discusses the physical and chemical processing of machine parts.)

**Bioenergy systems in livestock.** (Discipline examines concepts and terms regarding bioenergy systems that are used in animal husbandry, the structure of bioenergy systems, basic principles of their operation, the theoretical basis of calculation of their structural and energy parameters, technical and economic indicators of the use of bioenergy in livestock.)

**Reliability of agricultural machines.** (It is complex discipline which studies: engineering-physical bases of reliability of agricultural technique, test of machines are on reliability, methods of providing of reliability of agricultural machines, terms and determinations of the system of technical service and repair; technological processes of repair of machines; technologies of typical component, knots and aggregates overhaul; processes of loss and proceeding in the capacity of agricultural machines.)

**Constructing of agricultural machines.** (The discipline foresees the study of theoretical bases and basic methods of planning of competitive resource saving of agricultural machines, technological equipment and mechanized processes. A receipt of skills students is from the calculations of machines with the use of modern methods and computer programs, that will allow promote the technical and aesthetically beautiful level of machines, reduce their prime price.)

**Biosystems engineering.** (Technological processes of engineering tools intervention in the structure of living matter to change its properties in usefulness of the person are studied. Lectures and workshops on the discipline provide for students assimilating the basics of biofuel production process engineering in terms of agricultural enterprises).

**Fundamentals of technics control.** (The discipline deals with the study of operating control of tractors and self-propelled agricultural purpose facilities, preparing them for the work and performance of agricultural machinery. Provided technical design capabilities tractors and units can be fully applied only at excellent learning and rational use of qualified control techniques in different engines conditions, which requires good knowledge of the structure and interaction mechanisms and systems of machines, rules of their maintenance and operation.)

### ***2.2.2. Specialization „Equipment of forest complex”***

**Timber plant species.** (Educational discipline examines the wide circle of questions, which touch ecology, biology and technology of artificial forest renewing and propagation. Taking into account that most specialists of forestry industry work with artificially renewed forests, the primary objective of discipline is directed to study of new technologies of forest propagation considering the regional and local typical conditions of plantings.)

**Machines and equipment for forestry.** (Educational discipline studies the modern state, problems and prospects of development of engineer for forestry, types of modern tractors, intended for forestry, machines for collection and treatment of seed, machine for bringing organic-mineral fertilizers, sowing and forest-planting machines, machines for the deck-houses of care of the forest, for a fight against forest fires, and also machines for uprooting of stumps and export of them from a silvicultural area.)

**Theory of cutting, woodworking machine-tools and equipment.** (The discipline studies a concept and deadlines for processing by cutting, physics and mechanics processes, construction and geometry of cutting tools and materials for their manufacture, construction of woodworking machines and accessories to them, and the types that do not run on them with a substantiation of rational cutting modes, discusses the physical and chemical processing of wood.)

**Fuel, oil and other consumables.** (The discipline studies theoretical and practical questions of fuel properties, lubricants and other consumable (paints, adhesives, interior materials and the impact of the quality of technical and economic indicators of machines and equipment of agricultural and forestry production; develops the skills of definition of the basic indicators of the quality and selection of suitable varieties and brands of petroleum products, special liquids and other consumables.)

**Woods cutting and transporting.** (Educational discipline studies the question of technique and technology of purveyance of wood raw material, his roughing-out and supply to the users, acquaints with the methods of work in forestry at the tree felling of wood, to the effective forms of management of organization of labour at the use of new machines and mechanisms, to the decline of energy consumption and financial resources.)

**Designing of machines for forestry.** (In an educational course disciplines are examined substantive provisions of design are sciences about the artistic constructing of technique, his category, their property and quality. Facilities and methods of prosecution are studied of form, composition of machine; skills of development of characters of functions of control and management are obtained; students meet with the right of ownership on developments in industry of design and bases of its defence.)

**Using of machines for forestry.** (The study of discipline provides future specialists theoretical and practical knowledge on questions a technique and its exploitation in the new terms of technologies of purveyance of wood raw material, his roughing-out and supply to the users.)

**Standardization and certification of machines.** (General principles of standardization, metrology and certification of technique are expounded in discipline. It is reflected accordingly Principles of Ukraine on standardization, metrology and certification and national standards of basis of drafting of normative documents, technical requirements intended for forming, technological processes on making of technique and equipment, maps of control of their quality and standards of enterprise, the rules of the metrology providing of processes of estimation of quality of technique and their certification are resulted.)

**Quality measuring of woods.** (This discipline provides to students the knowledge and professional skills about the methods to estimate the quality of trees, trees renewing methodical and commercial timbering requirements. The tasks of discipline is to study quantitative methods to evaluate the quality of trees, renewing of trees, terms of planting, tree fallings works, production of saw-timbers, commercial timbers and saw-timbers.)

**Constructing of machines for forestry.** (The method of constructing of machines for forestry is examined, analytical pre-conditions of conformities to principle of workings processes of knots and units are grounded, and also dependences are set for determination of rational parameters and modes of operations of machines.)

**Biosystems engineering.** (Technological processes of engineering tools intervention in the structure of living matter to change its properties in usefulness of the person are studied. Lectures and workshops on the discipline provide for students assimilating the basics of biofuel production process engineering in terms of agricultural enterprises).

**Reliability equipment of forest complex.** (It is complex discipline which studies: terms and determinations of reliability; engineering and physical bases of reliability of equipment of forest complex; mathematical theory of reliability; there is a reliability test of machines; methods of providing of reliability of equipment of forest complex. Purpose of discipline – to teach future specialists to provide reliability of equipment of forest complex during the set time on condition of optimum charges of financial and labour resources on their planning, production, exploitation, technical service and repair.)

**Technical maintenance of machines and equipment of forest complex.** (Discipline is the special scientifically applied to the cycle of professional preparation of specialist from constructing and design of machines. In discipline general principles of maintenance of the in good condition state and operability technique for users with the use of the preventive-maintenance system of technical service, basic principles of accompaniment of the constructed and made machines are expounded regulated normatively technical by a document on exploitation of machines, technical service, repair, by requirements to fuels and oils materials, by a nomenclature on made spare parts (numeration and authentication).)

**Bachelor in specialty  
" CONSTRUCTION AND CIVIL ENGINEERING "  
field of knowledge "Building and Architecture"**

Forms of Learning:	Licensed number of persons:
– Full-time	50
– Part-time	50
Terms of Learning	4 years
Credits	240 ECTS
Language of instruction	Ukrainian
Qualification graduate	Bachelor (Technical) in Building

**Concept of Learning**

of knowledge, skills and professional skills of new generation in construction of agricultural and environmental systems based on modern standards of education adapted to requirements of the world's best educational programs for public and private sectors in Ukraine.

**Practical training**

passing study (trial, geodesic) and industrial (vocational, technical, industrial enterprises) practices recommended by 52 companies, including strategic partners: John Deere Ukraine, Ukraine Amaco; Knauf Ukraine, Astra.

**Proposed Topics for Bachelor theses**

1. Project of construction of rural, agricultural and environmental systems.
2. The project of building fortifications agricultural and environmental systems.
3. Development of technology for building production facilities in rural areas, agriculture and environmental protection facilities.
4. Development of technologies for inspection and testing of buildings in rural areas, agriculture and environmental protection facilities.
5. Evaluation of properties of metals and materials in the construction of rural, agricultural and environmental systems.
6. The development process and rationale of building machines for specific production conditions.
7. The development process and rationale mechatronic systems construction equipment.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of Graduates**

receives basic higher education and can work in positions that correspond to 3rd and 4th levels of qualification according to state of professions: head (another supervisor) district (division) in construction, Head of Logistics, Head of CAD managers (stewards) in construction, engineer in architecture and engineering, head of construction team, squad chief mechanical engineer of use of construction equipment, technical service engineer, civil engineer, building inspector and fire safety.



### Bachelor`s Program and Curriculum in Specialty "Construction and Civil Engineering"

№	Name of Discipline, Practice	Semester	Amount	
			Hours	ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Physics	1,2	150	5
2	Descriptive geometry and engineering graphics	1,2	180	6
3	Higher Mathematics	1-3	300	10
4	Chemistry	1	90	3
5	Theory of mechanisms and machines	2,3	120	4
6	Theoretical Mechanics	2,3	180	6
7	Mechanics of materials and structures	3,4	180	6
8	Construction machinery	4	90	3
9	Architecture buildings	4,5	180	6
10	Structural Mechanics	4,5	180	6
11	Bases and foundations	6,7	180	6
12	Fundamentals of design and construction business	6	120	4
13	Water supply and sanitation	5	90	3
14	Construction technology	5	90	3
15	Metal structures	5,6	120	4
16	Reliability construction equipment	5	90	3
17	Heat and ventilation	6	90	3
18	Building construction	7	180	6
19	Reinforced concrete and stone structures	7,8	180	6
20	The production base construction	7	90	3
21	Study trial. geodetic	2	270	9
22	Educational technology	4	270	9
Total for standard part			4140	138
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukrainian statehood	1	90	3
2	Ukrainian language (for professional purposes)	1	90	3
3	Foreign language (for professional purposes)	1-3	180	6
4	Philosophy	5	90	3
5	Labour protection (Integrated)	8	180	6
6	Computers and computer technology	2	90	3
7	Ethnocultural	1	90	3
8	Science of law (integrated)	3,6	180	6
9	Introduction to the profession	1	90	3
10	Physical education	1-4		
Total (Disciplines offered by University)			1080	36
2.2. Disciplines offered by students				
1	Economic theory	5	90	3
2	Engineering geodesy (general rate)	2	90	3
3	Engineering geology soil mechanics and foundations	3	90	3
4	Building materials	2	90	3
5	Construction economy	7	90	3
6	Inspection and testing of buildings	8	120	4
7	Seismology	8	120	4
8	Basics of computer-aided design in construction	6,7	150	5
9	Software engineering calculations	8	150	5
10	Technical maintenance and repair of buildings	8	90	3
12	Modern building materials	6	150	5
13	Constructions of wood and plastic	5	90	3
14	Metals and welding in construction	6	90	3
15	Engineering structures	3	150	5
16	Organization of construction	7,8	180	6
17	Metrology and Standardization	4	150	5

18	Electrical construction	4	90	3
<b>Total (Disciplines offered by students)</b>			<b>1980</b>	<b>66</b>
<b>Total for elective part</b>			<b>3060</b>	<b>102</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training course	5-8	675	
4	Driver training	3-4	90	
<b>Total for Specialty (without Military training course and driver training)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Economic Theory.** Formation solving skills of professional issues, formation of practical skills in organizational design, preparation of construction documents, financial management, etc., to train competent to make rational and informed decisions, analyze, generalize economic performance of construction organizations to defend their point of view for decisions, to discussion.

**Law.** Developing the knowledge of foundations of theory of law and key areas of law (constitutional, administrative, civil, financial, labor, international, etc.) assimilation methods of legal regulation of economy; clarify legal principles of business and economic activities.

**Sociology.** Forming holistic view of specifics of object and purpose of sociological knowledge of foreign history and sociology, prospects for its further development, skills acquisition and organization of empirical sociological research and practice effective use of their results.

**Politology.** Study of nature, theory and methodology of political science as science, development of skills of understanding political relations and processes, acquiring skills of practical application of theoretical, practical and instrumental components of political knowledge, analysis of international politics, geopolitical situation and political processes in Ukraine, its location, status and responsibility in modern political world.

**Physics.** Enhancing knowledge and understanding of phenomena and laws of nature that appear in classical and modern physics and related to their use in industry, technology and everyday life to environmental protection and life safety.

**Descriptive Geometry.** Formation of knowledge formation geometry, performance and reading technical drawings, construction images such as using computer graphics, geometric modeling to teach students facilities and processes, to provide them with knowledge and skills needed to perform and read drawings for various purposes as those carried out by hand or computer, and solving for pictures, drawings and models of geometric engineering problems.

**Higher Mathematics.** Formation of theoretical knowledge and practical skills in fundamentals of mathematical tools, main methods of quantitative measurement of random factors affecting any processes, principles of mathematical statistics, which is used during the planning, organization and management of production and technological processes.

**Applied Mathematics.** Formation of theoretical knowledge and practical skills in fundamentals of mathematical tools, main methods of quantitative measurement of random factors affecting any processes, principles of mathematical statistics, which is used during the planning, organization and management of production and technological processes.

**Computers and Computer Technology.** As required educational and professional program students should be able to: build complex drawings and axonometric images three-dimensional objects, solve problems on intersection of two geometric shapes (point, line, plane surface) to solve problem on intersection of two geometric figures (straight, plane surface) to find distance between shapes and angles between them, for given legal education to build projection points of curves and surfaces and cross sections to perform complex geometric figures, finding life-size oblique sections, to issue engineering and construction drawings for standards; know: principles and methods of projection images, positional methods for solving problems; metric methods for solving problems, methods of formation curves and surfaces; state standards.

**Chemistry.** Submit student basic theoretical questions in physical chemistry as well as basic concepts of Macromolecular Chemistry.

**Theory of Mechanisms and Machines.** To deepen students' knowledge of theoretical material about fundamental laws of nature on which calculation schema create needed in construction business, but also as means of education in construction skills for future scientific generalizations.

**Theoretical Mechanics.** To deepen students' knowledge of theoretical material about fundamental laws of nature on which calculation schema create needed in construction business, but also as means of education in construction skills for future scientific generalizations.

**Mechanics of Materials and Structures.** Forming students knowledge of strength of materials, geometric properties of plane sections, external and internal forces, method of sections, diagrams of internal forces, tensile and compressive strength, mechanical properties of materials, the calculation of the strength and stiffness at stretching and compression, basic theory of stress and strain state; strength criteria, displacement, torsion, bending, bending theory further questions, complex impedance, general theorems, elastic systems, common methods for determining displacements, statically undetectable system, calculation of plane curves beams, calculation of thick-walled cylinders and rotating disks, elements of the theory of thin shells, to calculate design by boundary conditions, the stability of compressed rods, elastic vibrations, strength of materials of re-variable stress, accounts for shock loads, contact stresses, fracture mechanics basis.

**Engineering Geodesy (General Course).** Learning contents and main directions of geodetic activities, mastering basic methods of surveying, geodetic surveys, development of surveying instruments.

**Engineering Geology.** Graphically display lithologic composition of rocks area, describe the terrain, perform analysis and assessment of current state of geophysical environment, perform long-term weather conditions and changes that occur in geophysical environments and forms of relief for a long time to carry out individual sections of engineering and survey reports in construction.

**Building Materials.** Study of fundamental properties of building materials and their changes in operating conditions, study range of building materials and their production technologies, study of relationship of features "structure - structure - property" as well as their patterns of changes in physics-chemical, physical, mechanical and other effects and to identify effective construction materials field functionality.

**Construction Machinery.** Forming students knowledge of modern construction machinery, equipment and power tool, learning basic types of design solutions and construction machinery and equipment, their use in industry, development of skills of self-selection sets of machines and equipment considering type of work and conditions of use.

**Architecture of Buildings and Constructions.** Develop students' creativity, their creative ideas can be realized only in material form in products and structures made of concrete materials to teach properly select materials for buildings on which building

material is made in tree or rock, metal or concrete in monolith, depends on architectural appearance and design solution and cost, terms and conditions for use of building.

**Electrical Construction.** Forming students knowledge of electrical construction, linear range DC linear range of single-phase AC, three-phase current, transformers, electric machines DC machines AC, Low Voltage switchgear and relays, electrical measurements, choice of cross-section of wires and cables, rules Safety in electrical systems.

**Metrology and Standardization.** Preparation Bachelor-builder who needs to know metrological support of production and main methods and means of measurement in engineering practice and familiarize yourself with legal framework of metrology and statistical analysis and evaluation of measurement errors. Familiar with methods of measuring linear displacements and deformations by mechanical and electromechanical devices, methods of measurement of mechanical quantities using electrical transducers, methods of non-destructive quality control and testing of buildings and structures. Familiar with basics of standardization.

**Structural Mechanics.** Forming students knowledge of structural mechanics, kinematics analysis systems statically definable structure, movable load calculations, general theorem on elastic system, statically undetectable system, spatial rod systems, numerical methods for calculation of elastic metal structures; terms in calculation of strength of metal construction machinery, accounts for strength of metal structures of road vehicles beam type; calculations for strength metal frame type structures, lattice calculations of metal structures, metal structures calculated in form of beams, walls, plates and shells, estimates of strength of major components of cars, free vibrations of mechanical systems machines, forced oscillations, dynamics of problem is not oscillatory systems.

**Water and Wastewater.** Formation of future professionals with skills and knowledge of modern methods of design, construction and operation of water and wastewater systems populated cities, residential and industrial projects (basic provisions and requirements of state standards for water and wastewater systems, classification and basic characteristics of systems and schemes of water supply and drainage settlements, residential and industrial projects, principles of selection and scheme water and wastewater facility; basic principles of sanitary equipment of buildings and structures, identifying the design parameters of sampling, preparation and filing of various water quality for water supply purposes, definition of estimated parameters of drainage and wastewater from different users).

**Technology Building Production.** To deepen students' knowledge of theory, and acquire skills to make independent technological and organizational solutions in matters installation of precast concrete structures, design technology and complex mechanization of assembly processes.

**Metal structures.** Forming students knowledge about elements of metal, mixed frames of industrial buildings – beams, girders, trusses, girders, columns, connections, etc.; sheet structures, which include large-diameter pipelines, storage capacity for liquids (tanks), gas (gas holders), granular materials (bunkers and silos), construction and installation of steel, refineries, chemical plants, energy facilities (protective shell and carrying domain, air, distillation columns, reactors, etc.), high-rise buildings – towers and masts line radio and Tellez communications, networks, power, drilling tower, surveying marks, smoke and vent pipes, construction road and rail bridges, viaducts companies, moving bridge structure, tower and gantry cranes, large excavators, hydraulic structures, etc.; multi-frame (tall) civic buildings; span roof construction of hangars, shops aircraft, shipbuilding and engineering, laboratories, public buildings (theaters, concert halls, markets, indoor stadiums, exhibition halls), other structures, which impose special requirements, eg related to space exploration, nuclear energy and so on.

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**Heat and Ventilation.** Consolidate theoretical knowledge on properties of moist air, consolidate theoretical knowledge construction process heating and cooling with constant and variable moisture content, fixing basic assumptions of theory of heat transfer, familiarity with method of calculating value of thermal resistance of enclosing structures of buildings and determining heat loss room, determine estimated cost of heat for heating, ventilation and hot water, execution trace heating systems and selection of diameters pipelines heating system.

**Urban Planning and Transport.** Forming students urban world, understanding social significance of urban planning, and its dependence on natural, social and economic conditions and impact on people's lives. Addressing architectural and planning tasks and problems of engineering equipment reclaimed areas, improving transport system of city, including road network.

**Bases and Foundations.** Deepening knowledge of soil properties of different origin, composition and condition; better knowledge of soil properties change under influence of external factors, accounting contemporary theoretical developments in field of soil mechanics, accounting practices foundation of modern construction. The student should be able to: carry out selection framework to assess IHU construction site, type, construction and main dimensions of foundation, based on IHU construction site, perform calculations compatible bases and foundations as one of parts of building; create technical drawings on your PC using one of common graphics packages according to requirements of state standards, know: method for determining type of soil on basis of research and design characteristics of soil, Foundations of shallow and deep foundations lay, basis of calculation bases for boundary condition (I, II), requirements of national standards for design bases and foundations.

**Production base construction.** Learn basics of technology and manufacture of building materials, structures and products, identify areas of production base construction, to teach technical and economic parameters to perform selection process diagrams, raw materials and equipment.

**Technology and Organization of Construction.** Systematized knowledge about mastering technology and forms of construction, study of rational organization of construction site quality control system design and construction.

**Building Construction.** To acquaint students with basics of building: with individual products and design elements that are part of buildings, with appointment of structures and relationships between them, with the basic requirements that apply to structural elements of buildings and buildings themselves taking into account specific conditions of use.

**Reinforced Concrete and Masonry Structures.** Entry students knowledge of methods of calculation, design, construction and operation of concrete and masonry structures, taking into account requirements for reliable and safe operation, efficiency and environmental friendliness of these structures.

**Economics Building.** Formation of future professionals building management system specialized knowledge and practical skills in field of construction economics, planning indicators of industrial and economic activities, use of economic management construction company based on factors external and internal environment.

**Safety of Building.** Forming students' knowledge of legal and regulatory framework for occupational safety, government guarantees and conditions of labor, management and supervision of occupational safety and organization of production, training on safety, investigation and registration of accidents, occupational diseases and accidents; stimulation of labor and responsibility for its violation.

**Organization of Construction.** Gaining theoretical knowledge and practical skills that will be needed in practice. Interdependent system of training to perform certain types of work, installation and maintenance of general order on construction site, order and

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timing of works, supply all kinds of resources to ensure effectiveness and quality of certain types of work or construction projects.

**Architecture buildings.** To develop the students' creativity, their creative ideas can be realized only in material form - in products and structures made of concrete materials; teach correctly select materials for buildings on which the material made house - in a tree or a stone, metal or reinforced concrete monolith - depends on architectural appearance and design solution, the cost, terms and conditions for the operation of the house.

**Water supply and sanitation.** The formation of future professionals with the skills and knowledge of modern methods of design, construction and operation of water and wastewater populated cities, residential and industrial projects (basic provisions and requirements of state standards for water and wastewater systems, classification and basic characteristics of systems and schemes of water supply and wastewater settlements, residential and industrial projects, principles and choice of scheme water and wastewater facility; basic principles of sanitation equipment of buildings and structures, the definition of the design of the fence, water supply and preparation of different water quality requirements, the definition of the design of drainage and sewage from different customers).

**Technology building production.** To deepen students' knowledge of theory, and acquire skills to make independent technological and organizational solutions in terms of installation of precast concrete structures, design technology and comprehensive mechanization of assembly processes.

**Reliability engineering construction.** Discipline that studies: terms and definitions of reliability; engineering and the physical basis of reliability of building structures; mathematical theory of reliability; reliability testing; ways to ensure reliability. The purpose of discipline - to train future professionals to ensure the reliability of objects within a specified time with optimal costs of material and labor resources for their design, manufacture, operation, maintenance and repair.

**Reinforced concrete and stone structures.** Entry students knowledge of methods of calculation, design, construction and operation of concrete and masonry structures, taking into account the requirements for reliable and safe operation, efficiency and environmental cleanliness of these structures.

**The production base construction.** Learn the basics of technology and organization of production of building materials, structures and products; determine the direction of the production base construction; teach the technical and economic parameters to perform selection of technological schemes, raw materials and equipment.

**Engineering surveying (general rate).** Learning content and main directions of geodetic activities; mastering the techniques of basic geodetic works, geodetic shooting; development of surveying instruments.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines "History of Ukrainian Statehood", "Ethnocultural", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language (English, German, French, Spanish)", "Physical Training", "Labour and Life Safety", "Legal Personal Culture" see Section 2.1.

**Professional Introduction.** Introducing students to basics of building as integrated production process. Trace entire construction process from project work linked to area of construction, preparation and provision of necessary equipment is actually process of construction of modern technologies, streamlining construction area, construction of communication.



**Engineering structures.** To acquaint students with basics of building: with individual products and design elements that are part of buildings, with appointment of structures and relationships between them, with basic requirements that apply to structural elements of buildings and buildings themselves taking into account specific conditions of use.

**Metals and Welding in Construction.** Provide scientific principles and teach future professional bachelor properties of metals when used in technological processes of welding in construction industry.

**Fundamentals of Design and Construction Business.** Forming students knowledge about selection of effective design solutions for high-level design, general information about buildings and structures, their classification, basic concepts with definitions of basic requirements for buildings and their components, classification of construction and design of buildings and main provisions of unification, standardization and modular coordination in building size, foundation and underground construction solutions foundations of buildings, designs exterior and interior walls of buildings to meet modern standards, requirements, classification and design solutions for ceilings, floors, roofs and roofs of buildings, foundation design of industrial single and multi-storey buildings, principles of choice of space-planning and design decisions related to functional purpose and placement processes, the formation of master plans.

**Modern Building Materials.** Formation of skills that allow you to make right choice of material based on operating conditions, provide cost savings in materials, weight and buildings, mastering theoretical basis of design.

**Construction of Wood and Plastic.** To teach students properly handled and hold works, use beams, purlins, studs, rafters, arches, frames, trusses, spatial span and special design.

**Ethnocultural.** Discipline studies the patterns of development and functioning of the cultural life of society, the mechanisms of formation of ethnic, managing cultural processes. In the discipline are considered main stages of the world and national culture, social organizations and movements in the socio-political and cultural life of the community, identity and politics, political culture, global cultural process.

**Labor protection.** Forming students' knowledge of the legal and regulatory framework for safety; state guarantee conditions and safety; management and supervision of work and its organization in the workplace; training on safety; investigation and registration of accidents, occupational diseases and accidents; stimulation of safety and responsibility for its violation.

**Computers and computer technology.** As required educational and professional program students must be able to: build a comprehensive axonometric drawings and three-dimensional images of objects; intsydentnist solve problems on two geometric figures (point, line, plane surface); solve problems at the intersection of two geometric shapes (straight, plane surface); find the distance between geometric shapes and angles between them; for a given law education to build projection points of curves and surfaces; perform cuts and cross sections of complex geometric shapes; find life-size oblique sections; execute engineering and construction drawings for YESKD standards; Know: Principles and methods of projection images; positional methods for solving problems; methods for solving metric problems; methods of formation of curves and surfaces; YESKD state standards.

**Intoduction to the profession.** Introducing students to the basics of building as complex production process. Trace the entire construction process from design work linked to the area, construction management, training and provision of necessary equipment, in fact the process of construction of modern technologies, ordering the construction area, communication software structure and more.

## ***2.2. Disciplines offered by students***

**Software Engineering Calculations.** Feasibility studies and calculations of different variant solutions design, research organizations for various kinds of design. Inspection and testing of buildings. Bachelor builders and engineers who have in-depth knowledge of methods and means of studying basic properties of building materials, study and evaluation of stress-strain state of structures, buildings and structures at all stages of process (from design to operation) are competent in organizing systems, application methods and means of nondestructive quality control of construction products, oriented in design scheme of buildings and structures, perfectly aware of methodology of experimental research, know and be able to apply the methods and tools appropriate measurements, capable of quality control in construction, carry out surveys and to test structures, buildings and structures to draw conclusions about their condition and possibility of further exploitation.

**Seismology.** Study of theoretical knowledge about causes of emergence, spread and effects of earthquakes in seismically active areas of country on basis of current research activity of earth's surface motion of tectonic plates and continents. Installation and determine effect of mechanical waves on construction sites of various designs. Study and application of modern methods of increasing seismic.

**Fundamentals of Design Automation in Construction.** Familiarization with basic computer programs with computer-aided design of building structures, review latest and most current software systems of calculation and computer-aided design, introduction of integrated tools in Windows operating system and MS Office, as well as in most of software programming language VBA for Applications.

**Economics building.** The formation of future professionals heat and gas management system expertise and practical skills in economics of construction, planning and economic indicators of industrial activity, the use of economic construction management organization taking into account factors external and internal environment.

**Engineering surveying (general rate).** Learning content and main directions of geodetic activities; mastering the techniques of basic geodetic works, geodetic shooting; development of surveying instruments.

**Engineering geology.** Graphically display lithological rock areas, describe the terrain, perform analysis and assessment of the current state of the geophysical environment, execute the long-term forecast of and changes taking place in the geophysical environment in the form of relief for a long time to perform certain sections of engineering and survey reports in construction.

**Construction Materials.** The study fundamental properties of building materials and their changes in operating conditions; study technology range of building materials for their production; study of the characteristics of the relationship "composition - structure - properties", as well as their patterns of changes in physical and chemical, physical, mechanical and other influences; identify ways of effective use of building materials multifunctional purposes.

**Inspection and testing of buildings and structures.** Preparation of bachelors and engineers builders who have deep knowledge of methods and tools for studying the basic properties of building materials, research and evaluation of the stress-strain state of constructions, buildings and structures in all production stages (from design to operation); are competent in organization systems, application methods and non-destructive quality control of construction products; oriented design scheme in construction of buildings, perfectly aware of the methodology of experimental research, know and be able to apply appropriate methods and means of measurement; capable of quality control in construction perform inspection and to test structures, buildings and facilities, to draw conclusions about their condition and the possibility of further exploitation.

**Fundamentals of design automation in construction.** Introduction to basic computer programs aided design of building structures, modern and review the latest software systems of calculation and aided design, introduction of integrated tools in the operating systems Windows and MS Office, as well as in most software programming language VBA for Applications.

Software engineering calculations. Feasibility studies and calculations different variant solutions design, research organizations for different types of design.

**Technical operation and maintenance of buildings.** Form the basis of maintenance of buildings, the frequency of interventions and facilities maintenance buildings in work condition.

**Constructions of wood and plastic.** To teach students properly handled and carry out installation work, use the beams, purlins, studs, rafters, arches, frames, trusses, spatial span and special designs.

**Construction management.** 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 on the construction site, the order and timing of works, supplies all kinds of resources to ensure the effectiveness and quality of certain types of work or construction of

**Electrical construction.** Forming students' knowledge of electrical construction; linear range DC; linear range of single-phase alternating current; three-phase current; transformers; Electric machines DC; AC machines; low voltage switching equipment and relay; Electrical measurement; choice section of wires and cables; Safety in electrical installations.

## **2.10. EDUCATION AND RESEARCH INSTITUTE OF ENERGETICS, AUTOMATICS AND ENERGY SAVING**

**Director** – Doctor of Technical Sciences, Professor, Honored Worker of Science and Technique **Volodymyr Victorovych Kozyrskyi**  
Tel.: (044) 527-85-80; E-mail: epafort1@ukr.net  
Location: Building № 8, Room 11

The ERI organizes and coordinates Bachelor training in the following specialties:

### ***141 Power Engineering, Electrical Engineering and Electrical Mechanics***

Graduating departments:

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 Vasyliovych Grebchenko.

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 Volodymirovich Zhylytsov.

Department of Automatics and Robototechnical Systems named after acad. I. I. Martynenko. Tel.: (044) 527-82-22, E-mail: avto.ea@gmail.com  
Head of department – Doctor of Technical Sciences, Professor, Honored Worker of Education Vitaliy Pylypovych 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 Ivanovich 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 Hrygorovych Gorobets.

### ***151 Automation and Computer Integrated Technologies***

Graduating department:

Department of Automation and Robotics Systems named after acad. I.I. Martynenko  
Tel.: (044) 527-82-22, E-mail: avto.ea@gmail.com  
Head of department, Doctor of technical sciences, professor Lysenko Vitaliy Pylypovych.

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**Bachelor**  
**in specialty «POWER ENGINEERING, ELECTRICAL ENGINEERING AND ELECTRICAL MECHANICS»**  
**field of knowledge "Electrical Engineering"**

Form of Training:	Licensed number of persons:
– Full-time	150
– Part-time	150
Duration of Training	3 years 10 months
Credits	240 ECTS
Language of Teaching	Ukrainian
Qualification	Technician-Electrician

**Concept of training**

The educational process is based on a systems approach and interdisciplinary training principles to foster students' broadmindedness non-standard thinking, the ability to solve overhead and socio-economic problems and meet the needs of modern production and the labor market.

**Practical training**

Practical training is carried out in educational and research facilities of the university and the leading enterprises like poultry "Ukraine", "Kiev", "Havrylivski", Greenhouse "Pusha Vodytsya", PC "Kyyivsilektro", PC "Kyyivelektromontazh", companies "Oblenergo".

**Proposed Topics for Bachelor theses**

1. Autonomous system of animal energy complex using gas generator installation.
2. The set of measures to improve efficiency in diagnosing of electrical repair shops.
3. Electrification of technological processes in pigsties-vidhodivelnkyu.
4. Energy efficient heating system in greenhouse.
5. Microprocessor Protection System PL-10 kV.
6. Power supply of poultry farms from solar panels and connection to State Enterprise "Energorynok".
7. The project of reconstruction of transformer substation of Bila Tserkva CHP.
8. Improving the reliability of 0.38 kV transmission line based on application of self-holding insulated wires.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of Graduates**

Professionals trained to work in the following sectors: installation, repair and maintenance of electric motors, generators, transformers, electricity distribution and control apparatus, production and distribution of electricity, electric, electronic and optical equipment.

**Bachelor's Program and Curriculum in Specialty  
"Power Engineering, Electrical Engineering and Electrical Mechanics"**

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1.	High Maths	1, 2, 3	420	14,0
2.	Engineering and Computer Graphics	1	180	6,0
3.	Physics	1, 2	300	10,0
4.	Computer Technologies and Programming	2	150	5,0
5.	Theoretical Mechanics	2	90	3,0
6.	Fundamentals of Heat Engineering	3	120	4,0
7.	Electronics and Microcircuitry	3	120	4,0
8.	Electrical Materials	3	90	3,0
9.	Electrotechnical Systems of Power Consumption	3	120	4,0
10.	Theoretical Foundations of Electrical Engineering	3	120	4,0
11.	Electrical Apparatus	4	120	4,0
12.	Electrical Machines	4, 5	240	8,0
13.	Electrical Networks	4	120	4,0
14.	Foundations of Automation	4, 5	240	8,0
15.	Electrical Part of Stations and Substations	5	150	5,0
16.	Microprocessor Technique	5	120	4,0
17.	Metrology and Electrical Measuring	5	120	4,0
18.	Fundamentals of Electric Drive	5, 6	240	8,0
19.	Fundamentals of Electricity Supply	6	150	5,0
20.	Fundamentals of Relay Protection and Automation of Power Systems	6	120	4,0
Total for standard part			3120	104
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1.	History of Ukraine	1	90	3,0
2.	Ukrainian Language (for professional purposes)	1	90	3,0
3.	Physical Education	1, 2, 3, 4	300	10,0
4.	Foreign Language	1, 2	180	6,0
5.	Philosophy	2	90	3,0
6.	Ethnic Culture	4	90	3,0
7.	Safety of Labour and Activity	7	120	4,0
8.	Legal Culture of Personality	7	90	3,0
9.	Energysaving and Alternative Energy Sources	8	90	3,0
10.	Mathematical Problems of Energetics	8	90	3,0
11.	Fundamentals of Scientific Research	8	120	4,0
Total (Disciplines offered by University)			1050	35
2.2. Disciplines offered by students				
1.	Software of Engineering Calculations	1	90	3,0
2.	Technology of Production, Storage and Processing of Agricultural Products	2	90	3,0
3.	Hydraulics	3	90	3,0
4.	Ecological Fundamentals of Production, Distribution and Use of Electrical Energy	3	90	3,0
5.	Mounting of Energy Equipment and Control Systems	4	90	3,0
6.	Diagnostics of Power Equipment	6	120	4,0
7.	Basics of Technical Operation of Energy Equipment and Control	6	90	3,0



	Facilities			
8.	Basics of Digital Control and Programming of Microcontrollers	6	120	4,0
9.	Industrial Electronics and Transforming Equipment	6	90	3,0
10.	Electronic Devices in Control Systems	7	90	3,0
11.	Machinery and Equipment of AIC	7	90	3,0
12.	Basics of Business, Management and Marketing	7	90	3,0
13.	Fundamentals of AIC Energy Objects Design	7	150	5,0
14.	Electric Drive of Industrial Machinery and Mechanisms	7	120	4,0
15.	Technical Service of Energy Equipment	7	150	5,0
16.	Economy and Energy Services Organization	8	90	3,0
17.	Heat Power Installations and Systems	8	90	3,0
18.	Project Management	8	120	4,0
19.	Software for Engineering Modeling	1	90	3,0
20.	Mathematical Modeling on a Computer	1	90	3,0
21.	Esthetics	2	90	3,0
22.	Economic Theory	2	90	3,0
23.	Ecology (for professional purposes)	3	90	3,0
24.	Basics of Ecology	3	90	3,0
25.	Marketing	7	90	3,0
26.	Management	7	90	3,0
27.	Psychology	8	90	3,0
28.	Cultorology	8	90	3,0
<b>Total (Disciplines offered by students)</b>			<b>1860</b>	<b>62</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1.	Military Training	-	563	18,75
2.	Teaching Practice for the Production and Processing of Agricultural Products	-	60	2,0
3.	Educational Electro Fittering Practice	-	90	3,0
4.	Production Electro Mounting Practice	-	150	5,0
5.	Industrial Operating Practice	-	150	5,0
<b>Bachelor Thesis writing (Graduate thesis or Project)</b>			<b>300</b>	<b>10</b>
<b>State Attestation</b>			<b>30</b>	<b>1</b>
<b>Total for Specialty (without Military training course)</b>			<b>7200,0</b>	<b>240,0</b>

### Annotations of disciplines in the curriculum

#### 1. Standard academic disciplines

**High Maths.** Analytic geometry, linear and vector algebra. Elements of field theory. Functions of a complex variable. Differential calculus. Elements of functional analysis. Integral calculus. Differential Equations. Sequences and series. Harmonic analysis.

**Electrical Apparatus.** Manual control devices. Automatic switches. Electromagnetic starters, contactors. Devices of protective shutdown. Hybrid electric vehicles. Electromagnets. Vacuum breakers.

**Electrical Machines.** Electrical Machines DC. Transformers. Asynchronous machines. Synchronous machines.

**Electronics and Microcircuitry.** Element base electronics. Electronic devices. Amplifiers. Sensors. Regulators.

**Electrical Materials** Dielectrics. Conductor and semiconductor materials. Magnetic materials and materials for electronic devices.

**Electrotechnical Systems of Power Consumption.** Basic usage and sources of optical radiation. Lighting installation and networks. Irradiation installation. Physical and technological and electro-physical properties of agricultural products and materials. Methods of electrical heating. Electric equipment and its calculation. Electro-technological methods of cultivation of agricultural products.

**Engineering and Computer Graphics.** Descriptive Geometry. Terms and conditions kreslennya.Ofornlennya circuitry.

**Computer Technologies and Programming.** Computer architecture. Operating systems and software computing technologies. Systems and Technology Management database. Computer networks. Working in local area computer networks and the Internet. Basic programming and algorithmic languages. High-level programming languages. Mathematical package MathCAD. Programming in the mathematical package MathCAD. Computer graphics and image editors.

**Metrology and Electrical Measuring.** Analog gauges. Digital gauges. Methods and tools for measuring electrical, magnetic and non-electrical quantities. Metrology and metrological activities.

**Foundations of Automation.** Automation systems and elements. Means of automation. Linear systems of automatic control. Nonlinear and optimal automatic control.

**Fundamentals of Electricity Supply.** Parameters calculation. Electrical power systems: operation, structure, purpose and choice. Monitoring, protection and control of electrical networks. Reliability, quality and efficiency of power supply systems.

**Fundamentals of Electric Drive.** Mechanical and Electrical Specifications DC motors and AC. Transients in electric drives. Adjust the coordinate drive. Power drive. Choice of electric vehicles and electric control and protection. Scheme electric. General procedure for selecting drive.

**Fundamentals of Heat Engineering.** Fundamentals of Heat Mass Transfer. Thermal power plants and the application of heat in agriculture.

**Theoretical mechanics.** Theoretical mechanics. Theory of mechanisms and machines. Mechanics of materials and structures. Machine parts

**Theoretical Foundations of Electrical Engineering.** DC circuit. AC circuit. Turn on the RL, RC, RLC circuit on a sinusoidal voltage. Three-phase three-and four leading range of AC. Asymmetry in power grids and measures for its reduction. Asymmetrical loading three-phase transformer and power losses. Transients in electrical circuits.

**Physics.** Physical principles of mechanics. Fundamentals of molecular physics and thermodynamics. Electricity and magnetism. Elements of solid state physics. Optics. Nuclear Physics.

## **2. Elective academic disciplines**

### ***2.1. Disciplines offered by University***

Annotations of disciplines "History of Ukrainian Statehood", "Ethnocultural", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language (English, German, French, Spanish)", "Physical Training", "Labour and Life Safety", "Legal Personal Culture" see Section 2.1.

**Safety of Labour and Activity.** Safety system "man - technology - environment." General concepts of analysis and risk assessment. Means and security measures. Public administration and supervision of Safety. failure of the system. Direct and indirect assessment of harm to people and the environment. Assessment of environmental and social risks of adverse effects.

**Mathematical Problems of Energetics.** Analytical methods of mathematical modeling of production facilities. The models of typical objects construction based on the experiment results. Algorithms of realization of models on computers. Euler, Runge-Cutta's algorithms.

**Fundamentals of Scientific Research.** Methodological foundations of scientific research organization. The specificity of research activities. Total research methodology. Principles of scientific information. General requirements for the design and writing scientific works.

**Fundamentals of AIC Energy Objects Design.** Methods of design of electrification, automation and energy in agriculture. Computer technologies in design. Requirements for the project.

## ***2.2. Disciplines offered by students***

**Hydraulics.** Hydrostatics and hydrodynamics. Hydraulic machines. Basics of agricultural water supply and sanitation.

**Diagnostics of Power Equipment.** Methods for determination electrical equipment reliability. Various types of electrical equipment operational reliability. Control methods electrical equipment operability. Device providing of the test measurings and tests of electrical equipment. Modeling of emergency operating modes. Algorithms of troubleshooting technical products.

**Electrical Part of Stations and Substations.** Circuit breakers. Contactor. Devices of emergency shutdown. Olives switches. Vacuum switches. Gas circuit breakers.

**Electronic Devices in Control Systems.** Development and debugging of microprocessor systems in agricultural production. Discrete signals, their coding. DAC and ADC. The synthesis of digital systems.

**Electric Drive of Industrial Machinery and Mechanisms.** Driving characteristics of machines and mechanisms. The principles and control of electronic circuits. Complete equipment for automatic control. Experimental methods of driving characteristics.

**Machinery and Equipment of AIC.** Feeding machines. Processing enterprises. Systems and equipment of poultry farms. Machines for mechanization of agricultural work.

**Mounting of Energy Equipment and Control Systems.** Working drawings for Electroinstallation works Instruments, machinery and tools for electric installation works. The main types of electric installation works technology implementation. Planning and organization of electrical work.

**Ecological Fundamentals of Production, Distribution and Use of Electrical Energy.** Applied aspects of ecology. Ecological problems of Ukraine and its regions. Strategy and tactics of conservation and sustainable development of life on Earth. Fundamentals of theoretical ecology. Strategy and tactics of conservation and sustainable development of life on Earth.

**Basics of Business, Management and Marketing.** HR management system in the organization. Analysis and quality of staff turnover. Plan of personnel. Methods of recruitment and selection, assessment of motivation and professional development.

**Fundamentals of AIC Energy Objects Design.** Sources of heat. Burning of fossil fuels. Boiler systems. Heat generators. Heating systems. Heating networks. Gas supply of agriculture. Alternative sources of heat supply in agricultural production.

**Basics of Technical Operation of Energy Equipment and Control Facilities.** Legal and regulatory principles and operating power equipment problems. Power equipment in agriculture, optimization and reliability. Maintenance and repair of power equipment. The organization commissioning, acceptance testing and operation of rural energy.

**Industrial Electronics and Transforming Equipment.** Passive components of electronic circuits. Diodes and their models. Transistor schemes. Feedback. The operational amplifier. Characteristics of logic integrated schemes families. Digital microcircuits.

**Technical Service of Energy Equipment.** Maintenance and repair of electrical equipment. The organization commissioning, acceptance testing and operation of rural energy. Maintenance of transformer substations and transmission lines.

**Technology of Production, Storage and Processing of Agricultural Products.** Technologies crop production. Technology of production of livestock and poultry. Technologies of processing and storage of crop production, livestock and poultry.

**Economy and Energy Services Organization.** Economic efficiency of investment in the energy sector. The economic mechanism. Scheduling and wages in the energy sector. Revenue, profitability, financial activities in electricity. Energy planning. Recovery costs of fixed income.

**Bachelor**  
**in specialty «AUTOMATION AND COMPUTER INTEGRATED TECHNOLOGIES»**  
**field of knowledge " AUTOMATION AND INSTRUMENTATION"**

Form of Training:	Licensed number of persons:
– Full-time	50
– Part-time	50
Duration of Training	4 years
Credits	240 ECTS
Language of Teaching	Ukrainian
Qualification	Junior Engineer Automation and Computer Technologies

**Concept of training**

The educational process is based on a systems approach and interdisciplinary training principles to foster students' broadmindedness non-standard thinking, the ability to solve overhead and socio-economic problems and meet the needs of modern production and the labor market.

**Practical training**

Practical training is carried out in educational and research facilities of the university and the leading enterprises like poultry "Ukraine", "Kiev", "Havrylivski" Greenhouse "Pusha Vodytsya".

**Proposed Topics for Bachelor theses**

1. Development of automatic control of temperature in the installation for the production of milk.
2. Development of automatic control of temperature in a pigsty, the mother liquor.
3. Development of automatic control of temperature in the greenhouse.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of Graduates**

Activities are subject to generalized systems of automation and computer-integrated technologies. Professionals trained to work in the following sectors: - Engineer with automated production management, Manager - informant - techniques of configuring computer systems.

## Bachelor's Program and Curriculum in Specialty "Automation and Computer Integrated Technologies"

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1.	Ecology	7	90	3,0
2.	High Maths	1,2,3,4	540	18,0
3.	Numerical Methods	3	150	5,0
4.	Physics	2,3	300	10,0
5.	Chemistry	1	90	3,0
6.	Engineering Graphics	2	120	4,0
7.	Computer Technologies and Programming	1,2,3	300	10,0
8.	Electrical Engineering and Electromechanics	3,4	300	10,0
9.	Electronics and Microprocessor Technics	4,5	300	10,0
10.	Automation Systems Design	7,8	240	8,0
11.	Theory of automatic Control	5,6	300	10,0
12.	Technical Means of Automation	6	240	8,0
13.	Metrology, Measurement Technology and Instruments	4,5	300	10,0
14.	Identification and Modeling of Technological Objects	5	240	8,0
15.	Automation of Technological Processes and Productions	6	210	7,0
Total for standard part			3720	124
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1.	History of Ukraine and Ethnocultural	1	120	4,0
2.	Ukrainian Language (for professional purposes)	1	120	4,0
3.	Philosophy	3	120	4,0
4.	Foreign Language	1,2	150	5,0
5.	Physical Education	1,2,3,4	300	10,0
6.	Safety and Life	2	90	3,0
7.	Computer Integrated Technologies	6,7,8	195	6,5
8.	Microprocessor Devices Control	7	120	4,0
9.	Computer Graphics	3	90	3,0
10.	Automated Control Systems	7	105	3,5
Total (Disciplines offered by University)			1110	37
2.2. Disciplines offered by students				
1.	Information and Measuring Systems	8	120	4,0
2.	Computer Equipment, Networks and Systems	5	90	3,0
3.	Optimization of Control Systems Modelling		90	3,0
4.	Fundamentals of Systems Analysis	8	90	3,0
5.	Basics of Management, Marketing and Business	7	90	3,0
6.	Theory of Information	7	90	3,0
7.	Technology of Production, Storage and Processing of Agricultural Products	6	120	4,0
8.	Theoretical and Applied Mechanics	1,2	90	3,0
9.	Electrical Technologies in Agriculture	4	120	4,0
10.	Hydraulics and Heat Engineering	5,6	105	3,5
11.	Basics Technical Operation of Automation Systems	4	135	4,5
12.	Executive Mechanisms of Control Systems	8	90	3,0
13.	Fundamentals of Scientific Research	7	90	3,0
14.	Politology and Sociology	8	90	3,0
15.	Economy of Automated Production in Agriculture	6	90	3,0
16.	Law	8	90	3,0
17.	Economic Theory	6	90	3,0
18.	Psychology	4	90	3,0
Total (Disciplines offered by students)			1700	59



3. OTHER TYPES OF TRAINING				
1.	Educational Practice	-	300	10,0
2.	Industrial Practice	-	150	5,0
3.	Diploma Project	-	150	5,0
4.	Military Training	-	562,5	18,8
5.	Cultural Education Training	-	180	6,0
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Ecology.** Legal and organizational questions of natural environment protection. Theoretical bases of ecology. Global problems of ecology: problems of the population, power resources exhausting, the physical contents of " Greenhouse effect ", the physical contents of formation Ozone gaps. Concept of toxic substances. Hydrosphere protection. Atmosphere protection. Ecological monitoring systems. The agricultural production and its influence on the environment. Economic and legal aspects of rational wildlife management. Power and its influence on the environment. Bases of without waste technologies. Ecological examination of projects and technologies. Economic efficiency of nature protection actions.

**High Maths.** Elements of linear, vector algebra and analytical geometry. Differential calculus of function of one and several variables. Complex numbers. Transformation Laplas, numbers on orthogonal system, conformity between operations above originals and images. Integral calculus of function of one and several variables. Differential equations, differential equations systems. Numerical and functional numbers. The harmonious analysis.

**Numerical Methods.** linear system of algebraic equations. Elementary transformation system. The algorithm of Gauss method and its application. Harmonic analysis. Methods of data processing.

**Physics.** Physical foundations of classical mechanics. Foundations of molecular physics and thermodynamics. Electricity and Magnetism. Physics of oscillations and waves. Optics. Basics of Atomic physics and Quantum mechanics. Principles of solid state physics. Theory of relativity. Basics of nuclear physics and nuclear energy.

**Chemistry.** Structure of atoms, molecules, substances, their modular condition. Chemical reactions. Solutions of electrolytes and non-electrolytes. Corrosion and protection of materials and alloys. Concept PH. Electrochemical processes.

**Engineering Graphics.** Projective drawing. Views, cuts and intersects. Sketches and working drawings. Assembly drawing. Detail drawing. The drawing by means of AutoCAD system.

**Programming and Algorithmic Languages.** Algorithmic languages and methods of programming. Application of algorithmic languages. Bases of programming low -level and high.- level languages Application of programming in engineering activity.

**Electrical Engineering and Electromechanics.** Electrical and magnetic fields. Electrical circuits. Calculation of direct current electrical circuits. Multi-poles network. Nonlinear circuits. Calculation of circuits at alternative currents and voltage. Transients in linear circuits and their calculation. Calculations of nonlinear circuits. Transients in nonlinear circuits.

**Automation Systems Design.** Automation circuits, choice of methods for complex technical automation facility during designing and automation system analysis.

**Metrology, Measurement Technology and Instruments.** The legislative and normative acts in metrology. General problems of measurement and errors. The theory and practice of measurement precision and measurement systems. Analogue measuring apparatuses. Measuring mechanisms. Registering devices. Digital devices. Measuring of electrical and magnetic magnitude.

**Identification and Modeling of Technological Objects.** The classification of technological and manufacturing processes as objects of automatic control. Construction of static and dynamic objects of agricultural technological processes and production.

**Automation of Technological Processes and Productions.** Classification and structure of the modern atomic technological processes; the basic automatic characteristics of standard technological processes; automation problems in standard technological processes; automation of specific standard technological processes.

## **2. Elective academic disciplines**

### ***2.1. Disciplines offered by University***

Annotations of disciplines "History of Ukrainian Statehood", "Ethnocultural", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language (English, German, French, Spanish)", "Physical Training", "Labour and Life Safety", "Legal Personal Culture" see Section 2.1.

**Safety and Life.** Safety in system „ a person-technic-environment ". The concept of the human factor. General provisions of the analysis and risks estimation. Logic construction of events. Quality – the safety category. Means and actions of safety. The passport of substance, materials safety. The passport of object risk.

**Computer Integrated Technologies.** Project of systems on the basis of personal digital computers and reference to the object, projection automation systems of programmed logical controllers, computer-aided design and modeling of the electronic chips.

**Automated Control Systems.** Classification and structure of modern ACS; types of supply of ACS; ACS of specific objects and production processes in animal-husbandry, plant-growing and fodder production; the functional automation schemes; formulation of problems of ACS.

### ***2.2. Disciplines offered by students***

**Psychology.** Psychology of societies Principles of Constitutional Law Jurisprudence Ukraine Ownership.

**Theory of Information.** Entropy as indeterminate system status. Entropy and information. Methods of coding information. Information and code length, that provides desired reliability under designed noise level. Computation of channels capacity and control.

**Fundamentals of Scientific Research.** The content and principles of scientific researches. The program and research methods. The scientific report. Introduction of researches into production.

**Economy of Automated Productions in Agriculture.** Basic and turnover funds. Material and technical supply of AIC. Profit and profitability. Inter-economic planning. Organization of designing, mounting and operation of power engineering objects. Rate setting, wages and salary.

**Electrical Technologies in Agriculture.** Electrical and magnetic fields Electrical circuits. Calculation of direct current electrical circuits Multi-poles network. Nonlinear circuits. Calculation of circuits at alternative currents and voltage. Transients in linear circles and their calculation. Calculations of nonlinear circuits. Transients in nonlinear circuits.

**Hydraulics and Heat Engineering.** Thermal and state parameters. Thermal and dynamic processes. Thermodynamic processes. The first and second principle of thermodynamics. Humid air. Cycles of heat engines and refrigerator machines. Heat exchange theory. Heat conduction, Convection. Thermal radiation. Heat exchange devices. Thermal energy sources. Boiler plant. Heat generators. Physic of heat of agricultural buildings. Heating, ventilating, conditioning. Thermal product treatment. Renewable energy sources: solar energy, wind energy, biogas, energy conservation technologies.

**Computer Equipment, Networks and Systems.** Scope PCs and computer technology, the basics of the software, database management systems. Working in a computer network. Scan. Computer drawing among AutoCAD. Programming Languages.

**Fundamentals of System Analysis.** The basic concepts and definition of systems analysis. The basic methods, procedures, stages. Indication of management systems. Structural analysis of control systems. Subsystems and optimization of structure. Information characteristics of systems. Decision making.

## 2.11. FACULTY OF LAND MANAGEMENT

**Dean** - Ph.D., Associate Professor, **Taras O. Ievsiukov**.

Tel.: (044) 258 - 05 - 25 E-mail: [landuse\\_dean@twin.nauu.kiev.ua](mailto:landuse_dean@twin.nauu.kiev.ua),  
[yevsyukov@ukr.net](mailto:yevsyukov@ukr.net),

Location: building No. 6 room 219

The faculty organizes and coordinates Bachelor training in the following specialty:

### ***193 Geodesy and Land Management***

Graduating departments:

Land Resources Administration Management

Tel.: (044) 258-05-25

E-mail: [Uzr\\_k@ukr.net](mailto: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](mailto: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](mailto: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](mailto: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](mailto:k_svit@mail.ru)

Head of department – Doctor of technical, Professor S.S. Kohan

**Bachelor in specialty**  
**"GEODESY AND LAND MANAGEMENT "**  
**Field of knowledge" Architecture and building "**

Licensed number of students:	
– full time students	90 persons
– by correspondence	85 persons
Training duration	4 years
Credits	240 ECTS
Language	Ukrainian, English
Qualifications graduates	Bachelor in Geodesy and Land Management

**The concept of training**

The concept of training in " Annotations of disciplines "Ukrainian for Professional Purposes", "History of Ukrainian statehood", Ethnic and Cultural Studies", "Foreign Language (English, German, French, Spanish)", "Philosophy", "Physical Training", "Labour and Life Safety", "Legal Personal Culture" see Section 2.1.

" is to build systematic knowledge in topography, geodesy, photogrammetry, cartography, land management and geoinformation technologies. During training, students receive the skills for creating various cartographic materials: cadastral and topographical plans and maps, creating and filling databases for various geographic information systems, as well as obtain knowledge in Land Management, Land Cadastre and Land Law.

**Practical training**

Curriculum of training on direction 193 - "Geodesy and Land Management" includes educational-practical training on: computer science and programming, topography, surveying, agriculture, photogrammetry and remote sensing, surveying for land management, and practical training in land management and land cadastre. The aim of the trainings is to provide skills of practical knowledge of students with modern methods, forms of organization and tools in their future profession, forming their professional skills to make their own professional decisions for work in the real world, education needs to systematically supplement their knowledge and apply them in their practice activity.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

**Areas of employment of graduates**

Surveying for the compilation of topographic maps and plans, surveying work related to cadastre, mapping work and data collection, including the use of remote sensing, surveying work in industry and civil engineering, monitoring, economics and legal assessment of land and property.

The specialist may hold primary positions as technician or junior engineer.

## Bachelor's Program and Curriculum in Specialty "Geodesy and Land Management "

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Higher Mathematics	1,2,3	330	11
2	Physics	1,2	300	10
3	Computer Science and Programming	1,2,3	270	9
4	Topography	1,2	360	12
5	Topographic and land surveying drawings	1	120	4
6	Geology and geomorphology	1	120	4
7	History of land relations and land management	3	90	3
8	Geodesy	3,4	300	10
9	Mathematical processing of geodetic measurements	4	90	3
10	Electronic surveying instruments	4	120	4
11	GIS and Databases	5	300	10
12	Photogrammetry and Remote Sensing	5	210	7
13	Higher Geodesy	5	180	6
14	Satellite Geodesy and spherical astronomy	6	180	6
15	Land Cadastre	5,6,7	390	13
16	Land Management	4,5,6,7,8	480	16
17	Cartography	7	90	6
18	Land Law	7	150	5
19	Mathematical Methods and Models	7	90	3
20	Economics	5	90	3
Total for standard part			4320	144
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukrainian statehood	1	120	4
2	Philosophy	3	120	4
3	Ukrainian for professional purposes	2	120	4
4	Foreign language (English, German, French, Spanish)	1,2	150	5
5	Physical training	1,2,3,4	120	4
6	Labour and life safety	4	120	4
7	Legal culture of personality	4	60	2
8	Ethnocultural	5	90	3
Total (Disciplines offered by University)			900	30
2.2. Disciplines offered by students specialization 1				
1	Soil Science and the basics of Agrochemistry	2	120	4
2	Design of local roads	3	120	4
3	Statistical methods in land management	3	90	3
4	Fundamentals of Ecology	3	90	3
5	Fundamentals of Agriculture and Crop Science	4	90	3
6	Infrastructure Engineering of Territories	4	90	3
7	Psychology	4	90	3
8	Geodetic works in Land Management	5,6	120	4
9	Land Resources Management	6	90	3
10	Digital maps and plans	6	90	3
11	Automated Cadastral System	7	90	3
12	Rational use and conservation of land	7	90	3
13	Technologies of land productivity restoration	7	90	3
14	Inventory of settlements	7	90	3
15	Planning residential areas	8	90	3
16	Agroforestry amelioration	8	90	3
17	Remote monitoring of Land Resources	8	90	3
18	Investment analysis	8	90	3



19	Organization and management of production	8	90	3
Total (Disciplines offered by students)			1800	60
Total for elective part			2700	90
<b>specialization 2</b>				
1	Soil Science and the basics of Agrochemistry	2	120	4
2	Algorithms and Data Structures	3	120	4
3	Statistical methods in land management	3	90	3
4		3	90	3
5	Fundamentals of Agriculture and Crop Science	4	90	3
6	Infrastructure Engineering of Territories	4	90	3
7	Psychology	4	90	3
8	Topographic and geodesic which support land management	5,6	120	4
9	GNSS observations applied problems of geodesy	6	90	3
10	Digital maps and plans	6	90	3
11	Automated Cadastral System	7	90	3
12	Rational use and conservation of land	7	90	3
13	Regional geoecological monitoring	7	90	3
14	Inventory of settlements	7	90	3
15	Planning residential areas	8	90	3
16	Agroforestry amelioration	8	90	3
17	Remote monitoring of Land Resources	8	90	3
18	Thematic mapping of land	8	90	3
19	Assessment of the economic aptitude of relief	8	90	3
Total (Disciplines offered by students)			1800	60
Total for elective part			2700	90
<b>specialization 3</b>				
1	Soil Science and the basics of	2	120	4
2	Algorithms and Data Structures	3	120	4
3	Statistical methods in land management	3	90	3
4	Optimization of crops nutrition	3	90	3
5	Fundamentals of Agriculture and Crop Science	4	90	3
6	Global information resources in natural resources use	4	90	3
7	Psychology	4	90	3
8	GIS technology	5,6	120	4
9	Developing Web Applications	6	90	3
10	Digital maps and plans	6	90	3
11	Automated Cadastral System	7	90	3
12	Rational use and conservation of land	7	90	3
13	IT-infrastructure management monitoring systems	7	90	3
14	Inventory of settlements	7	90	3
15	Planning residential areas	8	90	3
16	Agroforestry amelioration	8	90	3
17	Photogrammetry and Remote Sensing II	8	90	3
18	Spatial organization of crop rotation	8	90	3
19	Spatial database design	8	90	3
Total (Disciplines offered by students)			1800	60
Total for elective part			2700	90
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training course	5,6,7,8	645	22,5
2	Academic Practice	2	180	6
3	Academic Practice	2	90	3
4	Academic Practice	2	45	1,5
5	Academic Practice	2	45	1,5
6	Academic Practice	4	180	6
7	Academic Practice	4	90	3
8	Academic Practice	4	45	1,5
9	Academic Practice	6	90	3
10	Academic Practice	6	90	3

11	Production Practice	6	180	6
<b>State Attestation</b>			<b>90</b>	<b>3</b>
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### . Standard academic disciplines

**Higher mathematics.** As a fundamental mathematical discipline, it learns the basics of mathematical analysis, linear algebra and linear programming. It contains mathematical tools for a thorough study courses: Mathematical Statistics, Risk Theory, Econometrics and Macroeconomics; it reviews integral calculus, theory of numbers. It is aimed at mastering basic mathematical techniques necessary to study biology, ecology, chemistry and physics, as well as special courses in subject areas.

**Physics.** The aim of the course is to show students a scientific view of the physical processes in the world, in the theoretical foundations of classical mechanics and molecular physics is based. Main methods of experimental study of the characteristics of mechanical motion, the theoretical basis of molecular physics are reviewed.

**Computer science and programming.** Discipline provides the theoretical knowledge and skills in using computer technologies by future surveyors in their practice. The structure of computers and principles of computer capabilities of operating systems, hardware, software, computers, Internet basics, HTML and create Web-pages, and basic techniques of office software package MS Office are reviewed.

**Topography.** Objectives of the course is to build knowledge about the history of the formation and discipline contribute outstanding domestic and foreign scientists in the development of geodetic science and practice, the current understanding of the shape and size of the Earth, the coordinate system used in geodesy, modern surveying instruments for measuring angles, lengths of lines, calibration, organizing and conducting topographic survey of objectives for land use, land-cadastral use, data preparation techniques for the agricultural purposes, methods for making and fixing areas of design points and lines.

**Topographic and land surveying drawings** study the linear and dashed graphics elements and techniques of drawing, fonts for land management projects, plans and maps, symbols (codes) for graphic design topographic, cadastral surveying and materials, graphic design materials and land cadastre, GIS technology of maps and plans; technology design projects land management plans and land use map in class graphics editors.

**Geology and geomorphology.** The discipline is a basic discipline that forms a comprehensive understanding of the peculiarities of the genesis, evolution and current state of geological environment within which there are individual organisms and populations. Course Objective: to form an idea of the geological features of the Earth's environment, the laws of its development, dynamics and stability in relation to human impact.

**Geodesy.** Objectives of the course is to build knowledge about and outstanding contribution to domestic and foreign scientists in the development of geodetic science and practice, the current understanding of the shape and size of the Earth, the coordinate system used in geodesy, modern surveying instruments for measuring angles, conducting topographic surveys during land management, execution of cadastral and other works, techniques for data preparation makes the nature of objects agricultural purposes, methods for making and fixing areas of design points and lines.

**Mathematical processing of geodetic measurements.** The main purpose of discipline is to provide students with the necessary knowledge and skills needed to perform geodetic measurements and calculations, including during surveying work. Study subjects gives a theoretical knowledge and practical skills in the processing and resolution of surveying tasks to handle as a single value, and for the joint processing of many interconnected geodetic values.

**Electronic surveying instruments.** The purpose of teaching "Electronic surveying instruments" is to obtain basic knowledge of complex physical phenomena and processes that underlie the operation of geodetic electronic devices and computers. The aim of the course is to develop the student theoretical and practical training for working with electronic devices that are used to determine the coordinates and heights of points the earth's surface, as well as other engineering surveying and cadastral works.

**GIS and databases** consider the basic theory of GIS and database professionals surveyors. Discipline gives a basic theory of databases, the use of modern GIS and relational database systems in land, acquiring skills automated, storage, display, analysis, modeling spatially coordinated the design and content of databases, GIS for land management, particularly for the introduction and use of data from the state land cadastre.

**Photogrammetry and Remote Sensing.** Examines the nature and methods of remote sensing, the theoretical and practical issues related to the use of aerial and satellite imagery, as well as the essence of photogrammetric processes. In the study subjects, students receive the necessary knowledge of analytical and digital photogrammetry, image processing technology study in order to obtain certain products (cards, directories coordinates, etc.).

**Higher Geodesy.** Discipline "Higher Geodesy" examines modern methods for solving basic problems of geodesy based on the joint use of data of higher geodesy, astronomy, gravimetry and satellite geodesy. It consists of two main sections: "Spheroid geodesy" and "Physical Geodesy". The first deals with the solution of geometric problems on the surface of the ellipsoid, the theory of separate images of the surface of an ellipsoid on a plane and solve problems associated with the use of flat rectangular coordinates to geodetic works. The second examines questions that refer to the study of the figure of the Earth, its gravitational field and processing astronomical and geodetic networks.

**Satellite Geodesy and spherical astronomy.** It examines current methods for solving scientific and practical problems of geodesy, based on the use of data of space geodesy, astronomy, the theory of the gravitational field and satellite observations in solving the land. We study methods for processing photographic and radar surveys received satellites. We consider the issue using different coordinate systems needed to meet the challenges of satellite geodesy. Attention is paid to the study of satellite motion in the gravitational field of the Earth, including consideration of the impact changes in the physical characteristics of the planets and the outer (space) factors. We study the theory and practice of solving geometric and dynamic problems of satellite geodesy.

**Land Cadastre.** Purpose of the discipline is mastering the theoretical foundations of the land cadastre, composition and content of its components, the procedures for obtaining the necessary information and documents about the legal status of the land, their distribution by category and among land owners and land users, the organization of accounting quantity and quality of land, establishing comparative national economic value of land, the introduction of procedures for cadastral information during the project work, special surveys, study the legal, methodological, technical, organizational and practical aspects of the State Land Cadastre.

**Land Management.** This discipline plays a leading role in training bachelor students on specialty "Geodesy Cartography and Land Management." Methodology and methods of rational use and protection of land, formation of different types of land use, delineation of political subdivisions, planning areas. We consider the territorial organization of agricultural

and industrial production in the regions and ownership of land are studied. The course covers the overview of the requirements for land use at the national, regional and local levels.

**Cartography.** This discipline reveals the nature and properties of maps as models of the environment, their mathematical basis, methods of imaging, the issue of generalization, conclusion of maps and atlases, their classification, cartographic method of research, technology mapping. It generates students' ability to create works of various cartographic scale, scope and purpose of their use in teaching, research and practice.

**Land Law.** Purpose of the discipline: the formation of future bachelors mastering a set of knowledge in the legal regulation of land relations knowledge and ability to analyze legal acts that regulate the possession, use and disposal of land by individuals and legal entities. The task of the study: to be able to apply the acquired theoretical knowledge in the field of land relations in the performance of production activities, practical tasks, specific professional situations in the possession, use and disposal of land.

**Mathematical methods and models.** Economic-mathematical modeling techniques in land is a special discipline in the training of engineers, surveyors, which aims to explore the theoretical principles and practical skills processing large volumes of information and adoption of science-based land management decisions on the use of economic-mathematical modeling methods and tools electronic computers. Students acquire the skills of self-modeling of economic processes related to the organization of rational land use in the development schemes and land management projects, and learn specialized software.

**Economics.** The object of discipline is to study the economic laws of social production, the rationale for the choice of entities optimal use of scarce resources in order to most fully meet the growing needs of people. The aim of the course is to develop knowledge systems of economic relations in society, issues of efficient use of limited resources, the operation of the main components of the economic system, the development of students' economic thinking.

**The history of land relations and land management.** The discipline involves the study of the formation of land relations - from primitive society to modern socio-historical formations. Students learn the features of land relations and land use in the ancient world, in feudal times. The features of the formation of land market relations. Details the features of land surveying work performed at the time of the Russian Empire, the Soviet Union and the independence of Ukraine.

## **2. Elective academic disciplines**

### ***2.1. Disciplines offered by University***

Annotations of disciplines "Ukrainian for Professional Purposes", "History of Ukrainian statehood", Ethnic and Cultural Studies", "Foreign Language (English, German, French, Spanish)", "Philosophy", "Physical Training", "Labour and Life Safety", "Legal Personal Culture" see Section 2.1.

### ***2.2. Disciplines offered by students***

**Soil Science and the basics of Agrochemistry** reviews the science of soils, their formation, structure, properties, patterns of distribution, formation and development of the main properties - fertility, the most rational of use of soil. It examines the soil as a natural body, as a means of production, the subject of human labor and its product.

**Design of local roads.** Aim of the discipline - to give students knowledge that will allow them to find optimal solutions to problems related to the rational use of land resources in the planning and design of road network to meet the requirements of an effective area of farms, efficient implementation of production processes and land use, perform economic assessment placement of road network into account logistics movement and make technical design of local roads of lower categories.

**Statistical methods in land management** - the fundamentals of using mathematical and statistical methods of land management and cadastre data using computer technology are reviewed.

**Fundamentals of Ecology.** The course introduces students to the main sections of modern ecological science: fundamental ecology, and environmental socioecology. Probable study biotic relationships between individual organisms and their populations, their interaction with the environment are shown. We consider the theory of the biosphere and ecosystems, problems and sources of energy flows in ecosystems, the problem of interaction between man and the environment, environmental ethics.

**Fundamentals of Agriculture and Crop Science.** Explores the theoretical and practical problems most rational use of arable land, agricultural landscapes, how to develop physical, chemical, biological and mechanical methods and techniques to improve soil fertility, crop yields and stability of agroecosystems. Crop science deals with the study of new varieties and hybrids of cultivated crops and wild plant species to the action of biotic, abiotic and anthropogenic factors of the environment, develops cultivation technology for yields with consistently high quality based on intensification, energy saving and environmental safety.

**Infrastructure Engineering of Territories.** The discipline involves the examination of placement within certain territories set of objects and structures, utilities and components contour reclamation of territory and internal organization of agricultural enterprises. The principles of rational distribution of elements of artificial arrangement, taking into account the economic needs. Students learn to develop design solutions aimed at the rational use and protection of land, increasing the efficiency and productivity of land resources.

**Psychology** - the course is aimed at making future specialist could feel confident, stepping into a profession. Knowledge about the features, principles and patterns of training and education of individual psychological characteristics of its formation and development of individual psychological characteristics that lead to specific behavior of the individual, its activities and communication, help to understand the deeper motives of human actions, to regulate their relations with these and other problems are the focus of the course.

**Geodetic works in land management.** Students learn the features of the existing geodetic materials that include significant examination of a particular area; work with involving geodetic surveying marks, topographical survey of existing underground utilities, and processing of the results.

**Land Resources Management** is a special discipline in the training of engineers and surveyors aims to know the nature and patterns of land management, research methods and management mechanisms. Each mode of social production, the level of productive forces and relations of production correspond to a definite system of land management, due to the dominant form of ownership of land and other means of production, as well as the inherent forms of land use. To properly understand the nature and basic ways of land management, to justify its maintenance and reveal patterns of changes in the specific conditions of the land system, it is necessary to trace the historical relationship management with other phenomena and specific historical experience.



**Digital plans and maps** cover the basics of digital mapping and the possibility of using GIS in digital maps. The compilation of digital maps and plans using ArcGIS 9.x is taught.

**Automated Cadastral Systems.** The discipline studying the basics of automated cadastral systems associated with information support of the State Land Cadastre (SLC). The elements SLC automated through the use of GIS technology.

**Rational use and conservation of land.** Purpose of the discipline - the formation of skills independently analyze the state of land use, evaluate options for optimization, predict the development of degradation processes, develop measures to prevent, capture the general principles of management of land resources on specific soil and climatic conditions.

**Technologies of land productivity restoration.** Purpose of the discipline - the formation of skills to analyze independently the quality of soil, to predict its changes under the influence of economic activity, to develop measures for optimizing the main parameters of soil fertility, the general principles of self-mastery and regain productivity of land in various natural and agricultural areas.

**Inventory of settlements.** The aim of the course is to explore theoretical issues of inventory settlements and practical application of these issues in the conduct of basic and current land records in order to explore the land fund all towns - villages, towns, cities, reporting the presence and distribution of land settlement, located owned and providing for the use, preparation of a report on the availability and distribution of buildings (structures) settlement by the number of floors, wall material, technical equipment, for reasons of unsuitability for use; report on street road network location, network engineering settlement, carrying monetary value of the land settlements: functional zoning settlements, compiling balance of land settlements.

**Planning residential areas** gives knowledge about the basic objectives and planning of routes and reconstruction of villages, skills in drafting and planning of residential and industrial development zones, to use normative and methodological literature on the development of urban planning and apply their knowledge in drafting land use to set or change the boundaries of the settlement, the monetary evaluation of land settlements.

**Agroforestry amelioration.** The discipline aims on study of steppe massive afforestation, creation of shelter forest belts, combating soil erosion, consolidation and development of the sands, mountain afforestation.

**Remote monitoring of land resources** includes the study of the preprocessing and thematic processing of remote sensing (RS), the possibility of using remote sensing data for monitoring and management of land resources.

**Land reclamation** purpose - to familiarize students with the basic types of reclamation, the current state of agricultural reclamation, reclamation work on the influence of natural factors of soil formation, positive and negative effects of reclamation and environmental problems on land reclamation.

**Algorithms and Data Structures.** The aim of the course "Algorithms and Data Structures" is forming ideas about basic data structures and basic algorithms for processing geospatial data. The course is focused on the formation of students' skills: working with static and dynamic data structures, mastering the techniques of formalizing logic and computational tasks; the ability to create and explore the effectiveness of algorithms and decision on the application algorithms for searching and sorting data.

**Investment analysis.** The content and methodological support of the discipline are aimed at developing students' knowledge and practical skills in analysis methods efficiency investment projects (primarily real investments) and implementation of agricultural enterprises investment strategies



**Topographic and geodesic which support land management.** Topographic and geodesic which support land management is a special discipline in preparation for the master program "geodesic-mapping technology land management." In the process of mastering masters consider the following issues: the nature topographic surveying providing land and its components; surveying materials, their types; land drainage projects; surveying and topographical work for the needs of land use; engineering and surveying work for accounting and registration of land plots; Modern technologies of inventory of land; surveying the lands of environmental, health, recreational, historical and cultural significance; geodesic support sustainable water and forest management, planning and construction work.

**GNSS bservations applied problems of geodesy.** The discipline of the application of satellite observations in solving applied surveying tasks , modern satellite methods for determining the coordinates of points , the general principles of the method of differential GNSS, factors affecting the accuracy of observation , construction and development of the state geodetic network using satellite navigation systems . The review also reference coordinate system used in satellite positioning techniques .

**Regional geoeological monitoring.** The course covers the nature and scientific bases of regional geoeological monitoring and problems solved during monitoring research. Levels and functional structure of geoeological monitoring are characterized; the principles and implementation of algorithms geoeological monitoring of the environment are revealed. The expediency of using the results of previous geo-ecological research in the planning, selection and implementation monitoring objects monitoring studies is discussed. Methods of geoeological monitoring, observed parameters of the environment, especially the use of monitoring data in solving the environmental management and land management, land protection are characterized.

**Thematic mapping of land.** The discipline deals with content and object of thematic mapping, especially thematic content of maps of land resources, use of thematic maps in land management activities, as well as issues relating to the application of thematic maps, atlases and cartograms in agricultural practice and during geodetic and cartographic works. Theoretical knowledge is reinforced by practical skills in electronic map editing using QGIS software.

**Assessment of the economic aptitude of relief.** The course is devoted to coverage of issues related to the study of relief as the basis deploy for various human geospatial activities, including land use. The nature of the relief, its genesis, morphology, structure, development, resistance to anthropogenic influences, is characterized. Typing of relief and its elements, the influence on the structure and condition of the relief of natural and anthropogenic factors are shown. The criteria determining the eligibility of economic aptitude of relief are proposed. Forms and elements of landscape of different genesis and morphology for their different economic use suitability are evaluated. The risks, arise during non-compliance ecosafety economy in the relief of various genesis, morphology, stability and development stage, are characterized. The possibilities of using data on relief for solving land use and environmental problems are shown.

**Spatial organization of crop rotation.** The discipline observes means and measures to model the types and kinds of crop rotations, their spatial organization with GIS technology. The use of GIS for automation of processes based on surveying at the local level on the example of projects that provide environmental and economic assessment of crop rotation as well as land management are observed. The principles and stages of project development are shown in order to provide ecological and economic assessment of crop rotation and land management based on GIS

**Spatial database design.** Course consists of topics related to fundamentals of building an object-oriented database models and methodology for object-oriented analysis

and design of complex database systems. There is a study using UML to construct a unified spatial database structure. Students get practical experience in object-oriented models of complex systems.

**IT infrastructure management monitoring systems.** The course includes study of theoretical knowledge in the development and management of IT infrastructure monitoring systems, as well as practical skills that enable to identify and minimize the costs of creating such systems. The structure, composition, objectives and importance of IT infrastructure monitoring systems as well as key processes of IT infrastructure are studied. There is methodology of building and managing IT infrastructure of monitoring systems.

**Algorithms and Data Structures.** The aim of the course "Algorithms and Data Structures" is forming ideas about basic data structures and basic algorithms for processing geospatial data. The course is focused on the formation of students' skills: working with static and dynamic data structures, mastering the techniques of formalizing logic and computational tasks; the ability to create and explore the effectiveness of algorithms and decision on the application algorithms for searching and sorting data.

**GIS technology.** The aim of the course "GIS technology" is forming ideas about the foundations of the collection, storage, processing and distribution of geographic or spatially referenced information. The course is focused on the formation of students' skills: gathering geospatial data using different data sources, processing, analysis and visualization of geospatial data to make good decisions.

**Developing Web Applications.** The aim of the course "Developing Web applications" is to develop knowledge for creation geographic information systems for the Internet. The course is focused on the formation of students' skills: design, development and support of WEB-applications on the Internet with the help of modern technology.

**Optimization of crops nutrition.** During studying of the subject "Optimization of crops nutrition" students take knowledge about special feature of crop nutrition on different fit for use soils and methods of optimization of crops nutrition. Furthermore, future specialists take practical skills to ecological and economic effective optimization of crops nutrition into specific rotations in specific conditions of the every one farm according to heterogeneity of soil surface quality and to specific feature of nutritive regime of specific soil depending on agricultural grouping for maximal realization of genetic plant potential and soil fertility recreation. They study to develop methods for soil fertility improvement for pecuniary valuation of lands.

**Global information resources in natural resources use.** Course consists of topics related to principles of organization and operation of computer networks, WWW, composition, structure and principles of search engines, basic methods of information search, advanced search. There is a study of basic resource conservation perspective, electronic and depository library, AgroWEB, Copernicus, GMES, GEOSS and other Internet resources. Students get practical experience in implementing effective information retrieval and organization of the research, selection of best practices research, and presentation of results.

## 2.12. 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

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

### **081 Law**

Graduating departments:

Theory and History of State and Law

Tel: (044) 259-97-25. E-mail: historylaw\_chair @twin.nubip.edu.ua

Head of the department – Candidate of Science in Law, Associate professor, Kachur Vira Olegivna

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, Pidubnyi Oleksiy Yuriyovych

The Department of Administrative and Finance Law

Tel.: (044) 259-97-25. E-mail: adminlaw@twin.nauu.kiev.ua

Head of the Department – Doctor of Law, Professor Kurylo Volodymyr Ivanovych

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 the Department – Doctor of Law, professor Yermolenko Volodymyr Mykhaylovych

The Department of International Law and Comparative Law

Tel.: (044) 259-97-25 E-mail: interlaw\_chair @twin.nubip.edu.ua

Head of the Department – Doctor of Law, Professor Ladychenko Viktor Valerijovych

**Bachelor  
in specialty "LAW"  
field of knowledge "Law"**

Form of Training:	Licensed number of persons:
– Full-time	125
– Part-time	125
Duration of Training	4 years
Credits	240 ECTS
Language of Teaching	Ukrainian, English
Qualification	Bachelor of Laws

**Concept of training**

Training of the qualified specialists in the field of law, who work for the establishment of supremacy of law in society and development of legal consciousness and legal culture of citizens. Education of the professional lawyer who can decide the issues of legal support of various spheres of public activities with a focus on agrarian, land and ecological relationship.

**Practical training**

During the training students fix and deepen the theoretical knowledge received in the process of studying of the fundamental and professional legal educational subjects and get skills of practical law enforcement. During the practical and production training students become participants of practical activities on the application of legal norms, observe and analyze various aspects of the lawyers-experts activity, learn how to take actions related to protection of rights and legal interests of physical and legal entities.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of Graduates**

The associate lawyers prepared within the programme have the possibility to work by profession in the authorities of public administration of Ukraine (public and local authorities), as well as at the enterprises, institutions and organizations as all-legal area of focus, and those that operate in different spheres of public life.

### Bachelor's Program and Curriculum in Specialty "Law"

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Judicial and law enforcement authorities of Ukraine	1	120	4
2	Legal ethics	2	90	3
3	Latin	1	90	3
4	Theory of state and law	1,2	180	6
5	History of state and law of foreign countries	1,2	180	6
6	History of state and law of Ukraine	2	180	6
7	Basics of Roman Law	2	120	4
8	Logic	1	90	3
9	Politology	2	120	4
10	Municipal law	3	90	3
11	Constitutional law of Ukraine	3	120	4
12	History of doctrines about state and law	3	90	3
13	Criminal law	3,4,5	210	7
14	Civil and family law of Ukraine	3,4,5	240	8
15	Administrative law of Ukraine	4	120	4
16	Criminal procedure	4	120	3
17	Economic law	5,6	120	4
18	Employment law	4,5	120	4
19	Land law	7	90	3
20	Economic procedure	6,7	120	4
21	Civil procedure	6,7	120	4
22	Environmental law	6	120	4
23	International law	6	120	5
24	Information law	3	90	3
25	Administrative procedure	7	120	4
26	Financial law of Ukraine	7,8	120	4
27	Agrarian law	7,8	120	4
28	Criminalistics	8	120	4
29	Criminology	8	120	4
30	Comparative law	8	90	3
Total for standard part			3780	126
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukrainian Statehood	1	90	3
2	Philosophy	3	120	4
3	Ukrainian for professional purposes	1	120	4
4	Foreign language (English, German, French, Spanish)	1,2,3,4	150	5
5	Physical training	1,2,3,4	120	4
6	Labour and life safety	2	120	4
7	Ethnocultural	4	90	3
8	Information technologies	4	90	3
Total (Disciplines offered by University)			900	30
2.2. Disciplines offered by students				
1				
1	Basics of the economic theory	5	150	5
2	Fundamentals of Management and Marketing	5	150	5
3	Religion studies	5	150	5
2				
1	Juridical psychology	5	120	4
2	Psychology of Management	5	120	4
3	Conflictology	5	120	4

<b>3</b>				
1	History of political and legal thought in Ukraine	5	150	5
2	Legal thought in Ukraine	5	150	5
3	Legal doctrines of the XX century	5	150	5
<b>4</b>				
1	International and legal standards of human rights	5	120	4
2	International defence of human rights	5	120	4
3	Practice of European Court on Human Rights	5	120	4
<b>5</b>				
1	Inheritance Law	6	150	5
2	Residential Law	6	150	5
3	Copyright law	6	150	5
<b>6</b>				
1	Intellectual property law	6	150	5
2	Notary in Ukraine	6	150	5
3	Family Law	6	150	5
<b>7</b>				
1	Law of social security	6	120	4
2	Town planning right	6	120	4
3	Recreational right	6	120	4
<b>8</b>				
1	Advocacy Ukraine	7	120	4
2	Prosecutor's supervision	7	120	4
3	Medical jurisprudence and forensic psychiatry	7	120	4
<b>9</b>				
1	European law	7	120	4
2	Institutional law of EU	7	120	4
3	National law of foreign countries	7	120	4
<b>10</b>				
1	Banking Law	8	120	4
2	Tax law	8	120	4
3	Customs law	8	120	4
<b>11</b>				
1	Corporate Law	8	150	5
2	Housing law	8	150	5
3	Exchange Law	8	150	5
<b>12</b>				
1	International law of energy security	8	120	4
2	International law of nuclear safety	8	120	4
3	International maritime law	8	120	4
<b>Total (Disciplines offered by students)</b>			<b>1590</b>	<b>53</b>
<b>Total for elective part</b>			<b>2490</b>	<b>83</b>
<b>3. OTHER TYPES OF TRAINING</b>				
<b>Militari training course</b>			<b>675</b>	<b>22,5</b>
<b>Academic Practice</b>			<b>420</b>	<b>14</b>
<b>Production Practice</b>			<b>480</b>	<b>16</b>
<b>State Attestation</b>			<b>30</b>	<b>1</b>
<b>Total for Specialty (without Militari training course )</b>			<b>7200</b>	<b>240</b>



## Annotations of disciplines in the curriculum

### 1. Standart academic disciplines

**Judicial and law enforcement authorities of Ukraine.** The educational subject "Judicial and law enforcement authorities of Ukraine" gives general background information about public and private authorities engaged in law enforcement activities. In essence the educational subject is basic, as it gives knowledge, without which it is impossible to learn the material of the following legal educational subjects. Learning of this knowledge allows to understand more deeply the specifics of the activity of law enforcement authorities during the study of civil, criminal, economic and administrative procedures.

**Legal ethics.** Juridical deontology is a philosophical - legal science and academic discipline that reveals basic aspects of legal activity (scientific, academic and practical ). Course "Legal ethics" enables students to gain basic knowledge of the requirements for professional and personal qualities of lawyers, as well as help shape the outlook lawyer. Particular attention is paid to the official and corporate ethics of lawyers in different specializations.

**Latin.** Study of Latin remains an essential part of the process of formation of specialist with higher education. A modern specialist must possess the skills of translation from Latin as the language of public educational function, this fulfills the role of an auxiliary subject as to qualification of specialist – legislator (representing a written sources of Roman law and international legislative language terminology). The aim of Latin course in the legal higher educational institutions is the mastery of the elementary grammar basics of Latin, to develop the ability to read and translate original legal text (medium difficulty), the accumulation of lexical stock with the help of dictionary , the ability to actually use legal terminology.

**Theory of state and law.** The theory of state and law is a social science of theoretic and legal character. It investigates the theoretic nature of functioning of such social phenomena as the state and law, and thus is a fundamental professional discipline which belongs to the basic training courses on getting higher legal education. The training program includes the legal concepts and categories relating to the theory of state and law. The purpose of this academic discipline is mastery by the students of a system of the general-purpose modern knowledge on regularities of emergence, development and functioning of state and legal phenomena at large.

**History of state and law of foreign countries.** The reform of modern Ukrainian society, fundamental changes in state legal institutions which occurred and are occurring, as well as other factors and factors that determine and will determine the necessity of increasing interest in the study of international reform experience, and solid approaches to the codification of the legislation. Academic discipline "History of state and law of foreign countries" will help students learn the facts and to identify patterns of emergence, development, decline, or death of various types of state and law in the specific historical conditions.

**History of state and law of Ukraine.** History of state and law of Ukraine is a compulsory educational subject in all higher education institutions and faculties of our country. Study of historical and legal heritage of the past generations gives an opportunity to understand more deeply the modern processes of state and legal construction, understand general regularities, main directions and prospects of development of state and legal institutions in the future. History of state and law of Ukraine aims to familiarize students with state and legal development of Ukrainian nation from ancient times to the present, including the historical types and forms of state and law, political institutions and

legal institutions in their historical development, it considers also the role of the state and law in society.

**Basics of Roman law.** The education subject "the Basics of Roman law" is a compulsory subject in the curriculum of all higher educational institutions. The historical significance of Roman law for Ukraine is based on the fact that for a long time it in its classic and Greco - Roman (Byzantine) variants had influence on the the formation and development of the Ukrainian law and continues to influence the formation of the concept of law in Ukraine today. The goal of the course is to acquaint students with the legal culture of Ancient Rome, with the basic institutions of the Roman public and private law, and also show the influence of Roman private law on the development of modern global civil law and civil law of the Ukraine in particular.

**Logic.** The study of the science of logic provides the familiarization of the students with the logical theory of thinking and mastering the skills of logical analysis received in the process of study of the political knowledge and interpretation of the formalized language of the science of logic in the sphere of politics; identification of logic errors in reasoning with political content; development of political knowledge; proving of the political knowledge on the truth or refutation on the false.

**Politics.** Formation of system of knowledge on questions of modern political system of the society, political consciousness and democratic political culture, necessary skills of political activities; study of the essence, theory and methodology of politics as a science; development of skills of understanding of political relations and processes; mastering of skills of practical application of theoretical, applied and instrumental components of political knowledge; analysis of international political life, geopolitical situation and political processes in Ukraine, its location, status and responsibility in the modern political world.

**Municipal law.** Municipal Law is a normative discipline of cycle of professional and practical training which aims to equip students with theoretical and applied knowledge of Ukrainian and foreign experience of the organization and functioning of municipal authorities, to form a holistic view of the specific regulation of municipal status and legal relations, features and implementing powers of local government officials, about the main regulatory acts in the field of local government.

**Constitutional law of Ukraine.** Constitutional law of Ukraine is the leading branch and science of national law system in Ukraine. As a branch of the national law, it establishes and regulates, and as a science, it studies the fundamental social relations regarding the political-territorial organization of the country, its operation, the socio-economic system. This means that it formulates the scientific bases of establishment of Ukraine as a state, without which the latter cannot be optimally predictable.

**History of doctrines of state and law.** Formation of legal philosophy based on knowledge of different approaches and concepts to specific public-legal institutions of law in general. This is a subject of study discipline "History of doctrines of state and law". Discipline "History of doctrines of state and law" will allow students to explore the history of formation and development of ideas of law, the law of the state, the main public-legal institutions in the process of human civilization.

**Criminal law.** The purpose of the criminal law studying is mastering by the students of knowledge of criminal law objectives, functions and principles; knowledge of the general conceptual framework of criminal law of Ukraine; ability to systematize and locate criminal legal norms; skills of the proper application of the common criminal law institutions in solving practical tasks; skills of the identification of crime signs in the committed act, the delimitation of crimes from other infractions; the ability to define the grounds and forms of criminal responsibility and the grounds of application of other measures of criminal-legal influence; the ability to perform a search and critical analysis of the materials of law-

enforcement activities in solving specific practical problems; the ability to understanding the general directions of the criminal policy in Ukraine.

**Civil and family law of Ukraine.** Civil and family relations are the wide layer of public relations, which every human is constantly facing throughout life from birth every day. Participation in these relations is implemented through the ability to have and exercise civil and family rights and responsibilities. However, knowledge of own rights and responsibilities is not enough. We should know not only how to exercise them in everyday life, but also how to protect them against invasion. While studying this course the student acquires knowledge not only of the civil and family legislation system, but also the relevant theoretical provisions, without which it is impossible to thoroughly understand and interpret the civil, family and legal categories.

**Administrative law of Ukraine.** Educational subject, which includes the mastery of specific tools of administrative law science, the study of the essence, forms and methods of state government, the Executive power system and its functions, problems of administrative enforcement in the state administration and the responsibility, the state economic management, the management of social and cultural development, administrative-political activity and cross-sector state governance.

**Criminal procedure.** As an educational subject, criminal procedure is based on the science of criminal procedural law and practice of its application by the courts, prosecutors, investigators, bodies of inquiry, lawyers. The aim of teaching the course «Criminal criminal procedure of Ukraine» is the disclosure of its importance for the protection of rights and legitimate interests of physical and legal persons during criminal proceedings, for consolidation of legality and law order, protection of interests of society and state.

**Economic law.** Economic law is taught to students of the third course, that is why the subject includes the study of economic law legal institutions, based on already obtained knowledge of state and law theory, constitutional, administrative, financial, civil laws and other methodological recommendations are to be used to help in acquisition of subject knowledge and to achieve the aims of the course study. The purpose of course is formation of the system of knowledge about legal regulation of economic activity, legal regulation of economy business in various specific fields of national economy.

**Employment law.** Employment law is one of the leading braches that constitute the law system of Ukraine, as it regulates one of the most important spheres of social relations — labour relations between employees and employers.

**Land law.** Land law studies the social relations between the subjects as to the realization of property right to land, and as to the issues of ownership, usage and disposal of the land. The purpose of the land law is the regulation of the land dealing relations between the subjects. According to the land law system, there are land dealing institutions, they are primarily the property right to land, forms of land uses, land servitudes, neighbourliness, security of property right to land, responsibility for violation of land legislation, the legal regimes of the land of Ukraine in accordance with their categories etc.

**Economic procedure.** Economic procedure studies the basic concepts, institutions, principles and sources of the economic procedural law, the provisions regarding organization and functioning of the economic courts of Ukraine; peculiarities of consideration of economic disputes; teaches to use the acquired knowledge in practice and make corresponding procedural documents. The aim of the course “Economic procedure” is to form a system of theoretical knowledge and practical skills of application of the procedural law norms with the rules of substantive law during the consideration of disputes subject to the jurisdiction of the economic courts.

**Civil procedure.** Discipline «Civil procedure» is based on the system and the provisions of the Civil Procedure Code of Ukraine. This discipline studies the general provisions of the legal regulation of the procedure for consideration and disposition of civil

cases, institutes of civil procedural law, that constitute its system, including civil legal procedural relationship, evidence and proof, the development of civil procedure as to stages and procedures, the procedural issues of execution of judicial awards.

**Environmental law.** Environmental law is aimed at creating most favorable conditions for life, work and recreation of citizens. This is life saving and protecting branch of law, its importance for human life and activity and for the whole society is hard to overestimate. The highest goal of the social policy of our state is to take care of the life and health of a person - this sector has the potential to implement it. Environmental relations are established between society and nature, between people and the environment. The objects of ecological relations are the natural wealth of the land, its minerals, waters, forests, air, wildlife, etc.

**International law.** International law plays an important role in the regulation of the relations between states, helps to maintain their stability. The science of international law develops the ability to assess and reasonably predict the development of international policy and relations. Study of this science allows to predict changes in the system of international relations, to simulate the behavior of subjects of international law, and to predict the effects of their proposed solutions. Study of this system of law and educational subject offers a future lawyer the opportunity to understand the processes of implementation and regulation of international cooperation. Course has theoretical and practical and legal value.

**Information law.** The aim of the course of international data protection law is to make students realize the value of the rules of law which govern the search, receiving, production and distribution of information internationally, as well as the growing role of international legal acts in the light of the guaranteed right for freedom of expression, inextricable link of the norms of the law with their practical application by the relevant authorities. The task of studying of the course is to familiarize with the most important sources of international data protection law, learning the most important normative acts, mastering the skills of how to work with them, study the principles of law and mastering the skills of how to use their content during solving specific problems and issues.

**Administrative procedure.** The purpose of the course «Administrative procedure» is the deep study of legal forms and methods, constitutional and legislative framework and human rights protection methods. Because it is the rules of administrative procedure, which provide recognition of the rights, duties and interests of natural or legal persons in the public sphere and their protection using management, installation and judicial means. The provisions of administrative procedure law of Ukraine define the procedure, conditions and measures for consideration and solution of specific administrative cases.

**Financial law of Ukraine.** Today, social, legal and political reforms are being implemented in Ukraine. In terms of the radical changes in the life of our country, the content of the financial relations are changing significantly, their legal regulation is improving, and thus the role of the financial law significantly increases. The objective of this course is formation of knowledge about the legal regulation of financial activity of the state and basic skills of application of financial legislation.

**Agrarian law.** The study of the current agrarian legislation and legal issues arising during the formation, activity and termination of economic operator in agriculture complex, definition of the legal regime for the property of such enterprises, acquaintance with the specifics of their management; study of the relations of the reforming of property and land of non-state agricultural enterprises, ways of protection of the peasants rights in the process of reforming, the peculiarities of the legal regime of agricultural purpose lands .

**Criminalistics.** Transition of Ukraine to the new socio-economic structure and process of the development of the operative democratic state and a truly civil society, as well as the necessity of building of the effective modern law enforcement system needs active usage of rich armory of science against criminality. The science of criminal law is

important discipline in the system of scientific knowledge, it is enhancing the enforcement activities. The discipline «Criminalistics» plays the special role in the long process of training of high profile, modern lawyer.

**Criminology.** While studying the subject the listener learns such knowledge as theoretical material with regard to the concept, the subject, the method of criminology as an education subject, subject, tasks of criminology as a science, legislation, which regulates the prevention of crime as whole and its separate types.

**Comparative law.** One of the major trends of modern law is intensification of integration processes, increasing of the international law influence. This encourages the active involvement of comparative law research. Comparative law as a branch of legal science has specific subject and method of scientific research: goal, objects, functions, structure, theoretical and methodological data. Its General part contains a basis of comparative law analysis of the modern law systems of the world as the main object of study. And a Special part shows the possibility of using a comparative law method in various fields of jurisprudence and legislation.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines “Ukrainian for Professional Purposes”, “History of Ukrainian Statehood”, “Foreign language”, “Philosophy”, “Physical Training”, “Labour and Life Safety”, “Ethnocultural” see Section 2.1.

**Information technologies.** The purpose of the discipline - formation of knowledge of students on the use of modern information technology for the successful implementation of information and communication in the management, which involves the mastery of knowledge and skills to work with applications running Windows, word processing, spreadsheet processors, the construction and administration of databases, create presentations.

### **2.2. Disciplines offered by students**

#### **1**

**Basics of the economic theory.** The main task of the course “Basics of the economic theory” is formation of deep economic knowledge of students, logic of modern economic thinking and economic culture, adequate conditions of transition of the country to market relations, teaching of students the basic methods of analysis of economic processes, and the ability to take informed decisions about economic problems.

**Fundamentals of Management and Marketing.** The course provides to the students theoretical training on management: - the nature of the basic concepts and categories of management and administration; - principles and functions of management; - systems management methods; - content management processes and technologies; - modern management theories and evolution of specific management functions under the influence of scientific and technological progress; - key features as subject in management, its interaction with the environment, organization and team; - Theory and practice of decision-making, implementation manager main functions of planning, organization, motivation and control; - The phenomenon of leadership and its use for effective regulation of subordinates actions; - Information support of the management and investigation of influence on this process communications systems; - Ethics and responsibility in management; - Management efficiency. The purpose and objectives of discipline: learning basic knowledge of the marketing. Study: general methodological foundations of marketing theory and practice of marketing research, the mechanism of



influence on the competitive position of firms in the market, set of basic elements and tools of marketing, marketing management.

**Religion studies.** The aim of the course is to study history of the formation and evolution of religious systems, the nature and genesis of dissent, contemporary religious situation in the world and in Ukraine, reveal the nature of religion as a social and cultural phenomenon, philosophical and spiritual - moral preparation of students for their self-orientation in terms of free choice, knowledge of social and cultural characteristics of different countries and people.

## 2

**Juridical psychology.** The main tasks of legal psychology is to study the psychological patterns of the impact of law and law enforcement on individuals, groups, collectives, and the development of scientific recommendations in order to improve the effectiveness of law enforcement, strict compliance with the law, successful solution of problems of justice and the rehabilitation of persons who have committed a crime.

**The Psychology of Management.** The study of psychological patterns of management, problems of communication and interaction between people in different social structures and analysis of psychological conditions and characteristics of management activities in order to increase the effectiveness and quality of work in the management system.

**Conflictology.** Conflictology - a system of knowledge about patterns and mechanisms of emergence and development of conflicts, as well as principles and technologies of their management. The main task is to develop students' skills and abilities to identify main content of the notion of conflicts, constructively resolve conflicts and to prevent conflicts in professional activities.

## 3

**History of political and legal thought in Ukraine.** Higher legal education at the present stage of development of our state now becomes qualitatively new content under the new state law requirements. Academic discipline "History of political and legal thought in Ukraine" creates the students ability to analyze, to give their own assessment of a particular concepts, doctrine, the views of local thinkers and scientists; laying the foundations of an alternative legal thinking.

**Legal thought in Ukraine.** State Process in Ukraine is largely based on the achievements of the national legal thought. Educational Discipline "Legal thought in Ukraine" will allow students to explore and analyze how motivated these or other approaches, concepts formed the constitutional institutions of Ukraine at different periods of our country.

**Legal doctrines of the XX century.** Legal thought in the twentieth century has reached one of the highest levels of development. This happened in the nascence event of a large number of different doctrines, concepts, political and legal doctrines. Discipline "Legal doctrines of the XX century" enable students based on complex analysis, synthesis and critical reflection of all available published materials research and analyze various legal doctrine and doctrine, to determine their impact on the development of human civilization.

## 4

**International and legal standards of human rights.** The usage of the nuclear energy for peaceful purposes opens extremely wide opportunities to improve the welfare of mankind. However, increasing of the number of scientific and industrial nuclear reactors, the intensification of nuclear materials trade and transportation, utilization of nuclear waste contain a potential risk of radioactive contamination of people and the environment. At the same time due to its physical and chemical properties, the radioactive



contamination is a danger to the countries, which may be located far from the borders of the country, where the nuclear incident occurred. These circumstances require joint efforts of the international community in ensuring of the safe development of atomic energy and to prevent negative consequences of uses of the atom for peaceful purposes .

**International defence of human rights.** The course is aimed at confirmation of the right as the art of goodness and justice through the promotion of a positive attitude towards the protection and observation of human rights and fundamental freedoms. It provides an overview of the basic ideas, concepts, principles of human rights, which are reflected in the theoretical writings and practice of the European Court of Human Rights and it contain information about legal activities in the field of human rights, forms, ways of legal protection and human rights observation.

**Practice of European Court on Human Rights.** The practice of the European court shows that the number of violations of human rights in Ukraine is only a little over 1% of the total number of human rights violations, recorded by European court in other countries. For example, from 8.5 thousand decisions of European court, only 120 in European court found a violation of rights by Ukraine. Very rarely, cases against Ukraine were satisfied by the court in full, and often not in the part of the claim, which appeared as a defining. Thus, a certain practice was formed in Ukraine as to appeals to the European court of human rights and passing judgment, which requires its study and analysis for a more effective recourse to the Court.

## 5

**Inheritance Law.** The proposed course «Inheritance Law» is designed for law students and aims to prepare future expert in law, which could to analyze scientific literature and to how the legislation through the prism of their practical application and conduct independent research. The task of the discipline is to familiarize with the basic provisions of inheritance law and its individual institutions; analysis and generalization of judicial practice in the field of inheritance law; self-help skills development of practical situations.

**Residential Law.** The purpose of discipline «Residential Law» is to develop in students a certain level of knowledge on legal and organizational issues of residential relations. The main objectives of studying the discipline «Residential Law» are students in acquiring knowledge and ability to effectively solve the problem of professional activities must meet the requirements of safety and guaranteeing the preservation of life, health and disability in professional activities of lawyers.

**Copyright law.** The purpose of discipline «Copyright law» is the formation of student's knowledge about the concepts and the grounds of protecting the rights and interests of authors. The objectives of the course are: theoretical study of the necessary provisions on copyright protection; mastering basic regulations, treaties in copyright law; study design and procedures for protecting the rights of authors.

## 6

**Intellectual property law.** Intellectual property issues in the modern world took a prominent place and became not just a legal or commercial, but because of the general intellectualization of modern economy, these problems, the solution of which requires complex strategic approaches, are becoming more political, that is why the role of the country in the protection of the owner rights in the conditions of deepening market reforms increases.

**Notary in Ukraine.** Notary in Ukraine is a system of bodies and officials entrusted with the duty to certify the law and facts, which have having value, and perform other notary actions, prescribed by the law, with the purpose of giving them legal validity. Study of subject "Notary in Ukraine " is the important and integral part of higher education of

students who chose the profession of a lawyer, because their responsibilities will include not only knowledge of laws and regulations, but also to application and explanation of them to others.

**Family Law.** The purpose of discipline «Family Law» is to acquire knowledge about the legal regulation of property and personal relations of family nature. The program involves teaching the discipline study of family law, practice of legal regulation in the sphere of family relations and newest theoretical developments on this issue.

## 7

**Law of social security.** Discipline involves the formation of student knowledge system of legal regulation of security and social relations in Ukraine, acquaintance with the basic concepts and principles of social security law, the study of current legislation on social security, legal problems arising in the course of its application, the definition of the legal status characteristics subjects of social security, study grounds and conditions of, modification and termination of security and social relations, learning methods of regulating security and social relations and protection of the rights of specific social security law.

**Town Planning Law.** Discipline aimed at developing students theoretical knowledge in the field of regulation of urban development, including building relationships with area planning, zoning, construction works and putting into operation of construction and practical skills in the approval procedures for construction permits and the basic agreements concluded in construction.

**Recreational right.** Issues to be studied: scientific approaches and provisions of the current legislation on tourism and recreational activities, proper application of the environmental, economic, and other areas of international law, implementation of measures of the legal protection of natural resources as an object of tourist-recreational use.

## 8

**Advocacy Ukraine.** Advocacy is the integral factor in the legal system and the main non-state Institute of protection of the individual, his / her rights and freedoms in civilized democratic countries. Almost all international human rights acts, ranging from the Common declaration and finishing with the Main provisions about the role of lawyers, consider the right to receive professional legal assistance as one of the most important rights of each person.

**Prosecutor's supervision.** Discipline "prosecutor's supervision" - an integral part of a complete legal education. Knowledge of the 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. At least this knowledge need lawyers who work in the bodies of representative and executive bodies, courts, banks, commercial structures, ie wherever needed highly qualified specialists.

**Medical jurisprudence and forensic psychiatry.** The aim of the course "Forensic medicine and psychiatry" is mastering general theoretical knowledge and practical skills necessary for the proper and timely appointment of forensic psychiatric examination for the correct formulation of its goals, providing all the necessary data on the subject person competent interpretation of examination findings

**9**

**European law.** Ukraine, which is located in the centre of European continent, should take its proper place and contribute to new perspectives of development of European and transatlantic relations, basing on unconditional respect for the norms of a democratic civil society, supremacy of law, development of market relations on the principles of free competition. European law is a branched complex international and supranational legal norms relating to different branches of law and are in a state of rapid development.

**Institutional law of EU.** Creation of the European Union with its special system of legal norms was due to the development of the economic, political and legal integration on the European continent. We consider the competence of the EU as a form of institutionalization of the integration processes in Europe and make the legal description of the ratio of the exclusive competence of the EU and competence of the Member States, features of the legal nature of the EU, due to its supranational character, which affects the structure and activities of the institutional mechanism of this interstate integration association; characterize the basic principles of activities of the executive authorities of the EU: European Commission, which affects the development of integration processes within the EU; the legal nature and the order of adoption by the EU Council and the European Commission of the legal acts - regulations, directives, decisions.

**National law of foreign countries.** The task of the education subject is to develop students' theoretical and practical knowledge on the theory and practice of the educational subject National law of foreign countries, to learn the legislative base and the ability to put it into practice. The theoretical part aims to familiarize with the concept and essence of this educational subject, to familiarize with the laws, legal norms of different countries, domestic constitutional law of each country, constitutional and legal status of a person and citizen, forms of government, elections and referenda, system of higher authorities. The practical part aims to familiarize with depth study of the analysis of modern system of normative and legal acts of foreign countries, ability to put them into practice, to consider a certain range of public relations regulated by the norms of law of different countries.

**10**

**Banking law.** Banking law of Ukraine is the independent branch of law, which includes the system of norms and principles aimed at regulation of the banking activity, organisation and functioning of the banking system of Ukraine. The course of banking law, which was designed to help students to master the banking law as a separate branch, promotes the independent acquisition of skills and the professional solving of practical problems in this sphere. The significance of the course is based on the increasing importance of the banking law in the system of legal sciences, mainly because of the transition of Ukraine to the principles of a market economy, the growth of the role of banks as financial intermediaries in the national financial and credit system.

**Tax law.** The objective of the course is to: understand the concept and characteristics of the tax law, tax legal relations, tax system of Ukraine; study the nature and direction of tax system reforming and tax legislation, to analyze the regulations that regulate the payment of taxes; consider the structure, functions and powers of tax control, liability for violation of tax legislation as well as ways to protect the rights and legal interests of taxpayers.

**Customs Law.** The purpose of the discipline "Customs Law" is the mastering of complex knowledge and skills regarding the essence of Customs Service of Ukraine; the legal basis for activities of the Customs Service of Ukraine.

**11**

**Corporate Law.** Corporate law is a new institutional formation in the law system of Ukraine. The terms “corporate law”, “corporate relations” were practically not used for a long time in the domestic legal science, they occurred only in works, devoted to the study of foreign countries law. The purpose of subject “Corporate law” is to give students basic knowledge of the subject, provide training aimed at the formation of intellectual potential of highly qualified lawyers, which have basic theoretical knowledge in the field of corporate right, necessary for future activities

**Housing law.** The purpose of discipline «Housing law» is to develop in students a certain level of knowledge on legal and organizational issues of residential relations. The main objectives of studying the discipline «Housing law» are students in acquiring knowledge and ability to effectively solve the problem of professional activities must meet the requirements of safety and guaranteeing the preservation of life, health and disability in professional activities of lawyers.

**Exchange Law.** The purpose and objectives of discipline «Exchange Law» are: forming a system of knowledge on the legal regulation of exchange relationships in Ukraine, ordering of trends and ways to solve problems and put forward the accumulated exchange practice solving disputes.

**12**

**International law of energy security.** The purpose and objective of the course is to develop students' knowledge on appropriate international legal regulation of energy law, and therefore relations that arise in this area, namely the development of energy resources and active transit trade, development of interstate relations in energy sphere, etc.

**International law of nuclear safety.** The purpose and objective of the course is to develop students' knowledge on appropriate international legal regulation of nuclear safety and the principles of international nuclear law, namely nuclear safety; non-proliferation; control the proliferation of nuclear weapons; monitoring the peaceful nuclear activities; mutual assistance in case of a nuclear accident or radiological hazards.

**International maritime law.** The main objective of the discipline is to study: the concept, system and sources of international maritime law, the rights and jurisdiction of the coastal state, the institution of the continental shelf, the maritime area of international law and special legal regime, private international law of the sea, the legal status of the ship, international legal regulation of shipping, settlement of international maritime disputes, contemporary international legal problems of safety at sea.

## **2.13. ECONOMIC FACULTY**

**Dean** – Professor, Doctor of Economics **Anatolii D. Dibrova**

Tel.: (044) 527-85-40 E-mail: [\\_\\_economy\\_dean@nubip.edu.ua](mailto:__economy_dean@nubip.edu.ua)

Location: Building № 10, Room 301

The faculty organizes and coordinates Bachelor training in the following specialties:

### ***051 Economy***

Graduating departments:

Enterprise economics named after prof. I.V.Romanenko, Tel.: (044) 527-81-01

E-mail: [dibrova@nubip.edu.ua](mailto:dibrova@nubip.edu.ua)

Head of Department – Professor, Doctor of Economics Svitlana M. Rogach

Entrepreneurship and agribusiness organization, Tel.: (044) 527-86-60 E-mail: [dibrova@nubip.edu.ua](mailto:dibrova@nubip.edu.ua)

Head of Department – Professor, Doctor of Economics Mykola M. Ilchuk

Labour Economics and Social Development, Tel.: (044) 527-82-69

E-mail: [dibrova@nubip.edu.ua](mailto:dibrova@nubip.edu.ua)

Head of Department – Professor, Doctor of Economics Oleksandr Iu. Iermakov

Global Economy, Tel.: (044) 527-86-48 E-mail: [dibrova@nubip.edu.ua](mailto:dibrova@nubip.edu.ua)

Head of Department – Professor, Doctor of Economics Natalia M. Vdovenko

### ***071 Accounting and Taxation***

Graduating departments:

Accounting and Taxation, Tel.: (044) 527-83-61 E-mail: [oia616@ukr.net](mailto:oia616@ukr.net)

Head of Department – Professor, Doctor of Economics, Ievheniia V. Kaliuga

Statistics and economic analysis, Tel.: (044) 527-82-36

E-mail: [statistics\\_chair@twin.nauu.kiev.ua](mailto:statistics_chair@twin.nauu.kiev.ua)

Head of Department – Professor, Doctor of Economics\_Vasyl K. Savchuk

Taxation and Insurance, Tel.: (044) 527-87-59 E-mail: [tax\\_chair@twin.nauu.kiev.ua](mailto:tax_chair@twin.nauu.kiev.ua)

Head of Department – Professor, Doctor of Economics Lybov M. Khudoliy

**072 Finance, Banking and Insurance**

Graduating departments:

Finance Tel.:(044) 527 88 90 E-mail: kafedfin@ukr.net

Head of Department – Professor, Doctor of Economics Nadiia M. Davidenko

Banking Tel.:(044) 527 88 90 E-mail: banking\_chair@nubip.edu.ua

Head of Department – Professor, Doctor of Economics Olena O. Oliynyk-Dunn

Taxation and Insurance, Tel.:(044) 527-87-59 E-mail: tax\_chair@twin.nauu.kiev.ua

Head of Department – Professor, Doctor of Economics Lybov M. Khudoliy



**Bachelor  
in specialty "ECONOMY"  
field of knowledge "Social and Behavioral Sciences"**

Learning:	Licensed amount of persons:
- day	100
- extra	80
Training period	3 years 10 months
ECTS credits	240
Language teaching	Ukrainian, English
Qualification of graduates	Bachelor of Economics

**The concept of training**

Specialty "Economics" are trained professionals who can provide a high-level scientific, economic and organizational activities of the company. To be able to develop measures to improve productivity, efficiency and profitability, product quality, reduce costs, ensure productivity growth, achieving effective results in terms of rational cost of material, labor and financial resources and organize their implementation. To be able to draw up business plans, term plans of the company in a market economy and competition with necessary justifications and calculations, organizational and technical measures to improve the economic mechanism, management structure, economic activity, identification and use of production reserves. To ensure sustainable development of the primary forms of planning, accounting and reporting documentation, which is used in the enterprise, and also participates in the implementation of automated control systems and computer technology for economic calculation in planning, accounting and business analysis.

**Practical training**

Practical training is an integral part of the educational process of training specialists of different educational levels in economics. Entry professional practical skills of highly qualified specialists is possible only if direct participation in industrial manufacturing processes at the agricultural enterprises of different ownership units and research institutions.

**Proposed Topics for Bachelor theses**

1. Efficiency of inputs farms
2. Analysis of the effectiveness of innovative development company
3. The intensification of grain production and ways to improve its economic efficiency
4. The economic efficiency of sunflowers and ways to improve
5. Organizational-economic substantiation of crop production program

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of Graduates**

Chief Economist; Chief economist of planning and finance department; chief economist department of labor and wages, chief economist department of labor and wages, Head of Laboratory scientific management and production management, Economist, Economist, Planning, economist contractual claims work, an economist at financial work, managers and assistant economic departments companies, associations, firms serving areas APK different ownership and so on.

### Bachelor's Program and Curriculum in specialty "Economy"

№	Name of discipline	Semester	Volume	
			hours	ECTS credits
1. MANDATORY TRAINING COURSE				
1	Political Economy	1	150	5
2	Microeconomics	2	120	4
3	Macroeconomics	3	120	4
4	History of Economics and Economic Thought	1	150	5
5	Mathematics for Economists	1,2	210	7
6	Probability and Mathematical Statistics	2	150	5
7	Computer Science	2	120	4
8	Econometrics	5	90	3
9	Optimization methods and models	6	120	4
10	Potential and Development Company	6	150	5
11	Business Strategy	8	150	5
12	Planning and control of the enterprise	6,8	150	5
13	Organization of production	7	150	5
14	Project analysis	8	150	5
15	Justification business decisions and risk assessment (done the English language)	7	150	5
16	Statistics	3,4	150	5
17	Money and credit	4	120	4
18	Finances	6	120	4
19	Accounting	3,4	210	7
20	Business Economics	4,5	300	10
21	Labor Economics and Labor Relations	3,4	120	4
22	Management	5	120	4
23	Marketing	8	120	4
24	International Economics	7	120	4
25	Cost management	7	120	4
26	University education and social communication	2	60	2
Along with mandatory component			3690	123
2. Selective Courses				
2.1. Disciplines by choice university				
1	History of Ukrainian statehood	1	90	3
2	ethnocultural	1	90	3
3	Philosophy	3	120	4
4	Ukrainian language for professional purposes	1	120	4
5	Foreign Language	1,2,3	150	5
6	Physical Education	1,4	120	4
7	Safety and life	3	120	4
8	Legal culture of personality	4	90	3
9	The technology of crop production	1,2	150	5
10	Technology of production of livestock products	2,3	150	5
Total elective University			1200	40
2.2. Subjects chosen by the student				
1	Logic	4	90	3
	Sociology		0	
	Political Science		0	
	Religious		0	
	Cultural and educational training		0	
	science of law		0	
	Basics of rhetoric		0	
	Psychology and Pedagogy		0	
2	Databases and Database	6	120	4
	Information Systems and Technology		0	
	ARM accountant		0	

**CURRICULA AND PROGRAMS OF BACHELOR DEGREE**

3	The tax system	5	120	4
	Taxation of individuals and entities		0	
4	Insurance	6	120	4
	Insurance services		0	
5	Fundamentals of stock	5	120	4
	Exchange Stock Market		0	
6	Infrastructure commodity market	8	120	4
	Commodity exchange goods		0	
	Trading Strategies businesses		0	
7	Finance companies	7	120	4
	Investment		0	
	International Finance		0	
8	Audit		120	4
	Accounting in the fields of national economy statements		0	
	Managerial Accounting		0	
9	The economy of agricultural enterprises	6	120	4
	Environmental Economics		0	
	Economics and organization innovation		0	
10	Fundamentals of Agricultural Consulting	8	120	4
	Economics of world agriculture		0	
	Agricultural management		0	
11	The economy of rural communities	7	120	4
	Basic scientific research in economics		0	
12	Rationing and wages	8	120	4
	Sociology of labor		0	
	Organization and wages		120	4
	Human development		0	
13	organization Theory	5	120	4
	agribusiness Organization		0	
14	Economic analysis (done the English language)	7	120	4
	Financial analysis		0	
15	Regional economy	7	120	4
	National economy			
<b>Total elective students</b>			<b>1890</b>	<b>63</b>
<b>3. OTHER STUDIES</b>				
1	Military training		870	29
2	Educational practice		180	6
3	Internship		120	4
<b>Preparation of bachelor work (thesis or project)</b>			<b>60</b>	<b>2</b>
<b>State attestation</b>			<b>60</b>	<b>2</b>
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

### Annotations of disciplines in the curriculum

#### 1. Standard academic disciplines

**Political Economy.** The purpose of discipline is learning future specialists fundamental economic knowledge, forming their logic of economic thinking and economic culture, teaching them the basic knowledge and methods of analysis of economic processes, the ability to make informed decisions about economic problems related to their future practitioners.

Objective: acquisition of appropriate skills of rational economic behavior, based on the conceptual foundations of a market economy, the modern understanding of the functioning of markets and pricing for the services of labor, capital, natural resources according to the type of market structure; skills analysis aggregates, determining factors and the effects of macroeconomic development of business systems and capacity of the state to correct this development in accordance with the objectives and priorities of economic policy.

**Microeconomics.** The aim of the teaching of the discipline is to develop market-oriented economic outlook, knowledge and skills regarding clarification of the mechanisms establishing and rebalancing microsystems and efficiency of economic entities. To achieve this goal the following tasks: learning motives, basic laws and methodological principles of behavior of economic agents in the market conditions at the micro level; universal mastering tools for self-analysis and study of optimal economic decisions in conditions of limited funds and the availability of alternatives.

Macroeconomics purpose of discipline study course "Macroeconomics" is to provide students deep theoretical knowledge on the economy - important sphere of human activity, the objective economic laws, familiarity with the methods and conditions of effective management and systematic holistic picture of macroeconomic theory and policy. Logic and structure of the course "Macroeconomics" will allow students to learn the necessary amount of knowledge that makes it possible to achieve a high level of professional competence and economic future professionals. Task. The main objectives of the course is to study issues such as methods for measuring the dynamics of domestic production; forming conditions and consequences of violation of macroeconomic equilibrium; the impact of inflation on unemployment and economic development; methods of state fiscal control; State instruments of monetary policy;

**History of economy and economic thought.** Formation of knowledge about the basic stages of formation and direction of economic development and economic studies, conditions and patterns of evolution of the world economy, economics, economic concepts and areas of major schools of economic thought.

Subject disciplines: economy of the world historical development, the emergence and development of economic views and ideas prevailing in the system.

Content modules: economy and economic thought primitive societies period of the day and early nineteenth century., The world economy and main directions of economic thought XIX - XX centuries.

**Mathematics for Economists** The purpose of higher mathematics is the formation of individual students develop their intelligence and ability to logical and algorithmic thinking. The main tasks of the course is to master the basics of mathematical tools necessary for solving theoretical and practical economic problems; ability to independently discover, learn and apply the scientific literature and other information sources and resources on higher mathematics; working out mathematical skills in research applications, such as the ability to transfer specific economic problems in mathematical language with the following construction of a mathematical model.

**Probability and Mathematical Statistics** object of study discipline patterns are random events and use them to build economic stochastic models. The purpose of discipline is to develop basic knowledge and practical skills of the foundations of probabilistic and statistical system, the main methods of quantitative measurement of the randomness of the factors that affect any process, principles of mathematical statistics used in the planning, organization and production management, evaluation product quality, system analysis of economic structures and processes, application of mathematical methods in economics. The program involves the study of two structural modules - theory of probability and mathematical statistics.

**Computer Science** object develop knowledge of the principles of construction and operation of computers, organization of computing processes on personal computers and their algorithmization, PC software and computer networks, and effective use of modern information and communication technologies in professional activity. The main objectives of the course is to study the theoretical foundations of computer science and applied skills using economic data processing systems; of programming for the PC; Computer networks in the study of social and economic systems and solving problems of professional orientation. Provides meaningful study four modules: the architecture of the modern computer, advanced software processing of textual information, work with a spreadsheet software MS Excel and modern software processing graphic data

**Econometrics** The purpose of discipline "Econometrics" is of students' knowledge about the quantitative evaluation of economic performance relationships for different sets of economic information, the latter resorting to testing on compliance of certain preconditions. The objectives of the discipline that must be solved in the course of the study are: help students master the methods of construction and implementation of econometric models using a personal computer; gain knowledge about the use of econometric models in economic research; acquiring skills students summarizing the results of statistical analysis and development of appropriate management decisions.

**Optimization methods and models of educational** discipline aimed at mastering the methods for solving optimization problems of financial and farm management.

The object of study - economic, organizational and management systems. Knowledge of the "Optimization models and methods" required students to write a bachelor's and master's theses and research.

**The potential development of the company** purpose: of mastering the conceptual apparatus of discipline, methodology and assessment tools applied market value potential of the company and its structural elements; acquisition of knowledge of the laws, principles and features of the formation, growth, competitiveness-building potential of the company as a balanced integrated education

Objective: Learn the latest means of effective capacity building enterprise, ensuring its competitiveness; knowledge and practical skills assessment activities as part of management development potential of the company.

**Business Strategy** Objective: mastering the theoretical principles of strategic planning, mastering skills and tools of strategic analysis and a strategy of the company.

Objective: development tools, enterprise development strategies and selection of strategic alternatives; strategic thinking skills development and practical application of methodological apparatus discipline; mastering by case analysis, feasibility study skills to solve strategic problems.

**Planning and control of the enterprise** purpose of discipline is to develop the students' knowledge of system development methodologies prospective and current plans of the company and monitoring their implementation

Tasks of the course: mastering forms, methods and process planning and control; study of the structure and technology development of model plans for economic and social development enterprise of indicators and methods of their calculation, optimization of production program

Organization of purpose - formation of theoretical knowledge and skills of rational organization of production and use of methods to increase the efficiency of the company. Objective: To study the theoretical principles of rational organization of agricultural production units; practical skills on rational organization of production and use of methods to increase the efficiency of the company.

**Project Analysis** The purpose of discipline is to form a system of knowledge assessment methodology to design solutions; development and study projects to meet social and personal needs with limited resources. The main tasks of project analysis are:

learning the basic concepts, concepts, methods and approaches used in the world in the analysis of design decisions; skills using tools of project analysis, mastering procedures of analysis, comparison and justification of the selection of projects, project evaluation on marketing technology, environmental, social and institutional viability, financial and economic attractiveness.

**Justification economic decisions and assessing risks** purpose of teaching this discipline is to develop knowledge and skills regarding substantiation of economic decisions with varying degrees of uncertainty and risk. To achieve this goal the following tasks: learning the basic principles of different types of substantiation of economic decisions, methodical approach to risk analysis and management; self-mastery skills of analysis, identification and risk assessment using computer technology and software and mathematical systems.

**Statistics** The purpose of discipline "Statistics" is to develop basic knowledge of students, including mastering their professional knowledge and practical skills in methods and forms, types and methods of statistical monitoring of agricultural production, development and analysis of statistical data, promotion of economic thought adapted to the requirements of the market economy.

The task of discipline that must be solved in the course of the study: understanding the challenges set before the statistical service of Ukraine in the current market conditions; mastering theoretical positions and mastering practical skills to use statistical methods of analyzing mass social and economic phenomena and processes; skills summarizing the results of statistical analysis and development of appropriate management decisions;

**Money and Credit** The purpose of the course the course "Money and credit" is to give students theoretical and practical knowledge for the management of the organization cash flow (cash flows), to form the students a theoretical basis for the subsequent mastering the practice of using monetary tools in the system of economic regulation Ukraine . It is important is to study economic relations with a turnover of money, including as a means of circulation of credit relations in modern economy.

**Finance** purpose of discipline "Finance" is to develop basic knowledge of finance theory, learning patterns of their operation at the macro and micro levels as the theoretical basis of financial policy and financial system. The educational goal of the discipline involves the acquisition of knowledge in all areas of operation of the financial mechanism, namely form students of finance conceptual apparatus for use in practice; provide information on finances, the financial system of the state and its role in the functioning of the economy; learn to apply their knowledge in practice, make informed decisions and to solve the problem.

**Accounting** The goal of teaching "Accounting" is to develop the system of knowledge of the theory and practice of accounting in the company. The main objectives of the discipline "Accounting" is the study of methods and rational organization and accounting in enterprises based on the use of progressive forms and national standards; study skills and use of accounting information in management.

**Economics of Enterprise.** The economic mechanism of functioning of the company, its development and use of resource potential in order to optimize economic performance.

**Labor Economics and Labor Relations** Academic discipline involves the study of issues related to the work as a leading factor of production, the development of labor potential of society, the formation and functioning of the system of industrial relations, labor market regulation. The main sections of the course is the organization, rationing and wages, particularly in agriculture. The problems of employment and social protection, international experience of regulation of social and labor relations and more.

**Management** The purpose of discipline - to give students a comprehensive system of knowledge about nature management in enterprises and organizations and agribusiness management skills of production processes in them; conditions for



performance of business structures; diagnosis and designing system of agricultural management, appropriate goals and objectives of market economy in agriculture. The objective of the discipline is to train future professionals able to streamline the organizational structure and management system to create enterprise (organization), maintain stability and capacity, ensure the dynamic development and competitiveness, which precedes theoretical preparation of students for the administration and management of the agricultural sector.

**Marketing** The purpose of discipline "Marketing" is learning and mastering theoretical knowledge and practical skills on the application, the use of tools AMP; organization, planning, implementation, management agromarket activities of agricultural enterprises for the effective functioning of the markets for agricultural products and foodstuffs in Ukraine and abroad, and further development. The task of discipline "Marketing" is to get the students knowledge in the field of agricultural marketing; marketing research markets for agricultural products and foodstuffs; forecasting market conditions; inventory management products agricultural enterprises and their quality; pricing; distribution system and marketing of agricultural and food products; promotion of food products in domestic and foreign markets; and gain knowledge in planning agricultural marketing, management and control of agromarket.

**International Economics** The purpose of teaching "International Economy" is to develop a system of theoretical and applied knowledge of modern role, functional content and tools of international economics in a highly competitive environment, the laws of the modern global economy. The main objectives of the discipline is to develop in students a holistic idea about the specifics of international business; mastering categorical apparatus used in the commission of international trade; forming a system of knowledge about the theoretical foundations international environment analysis and evaluation of its attractiveness for foreign business.

**Cost management** purpose of the discipline is to acquire knowledge and skills on the laws of formation expenses by type, responsibility centers and carriers to minimize their level and justification of optimal economic decisions. Tasks of the course is to expand the classification and cost structure, their characteristics; the essence of domestic and foreign systems and methods of cost accounting for production and content assessment of their impact on the cost management; method of management of certain types of expenses as productive and unproductive nature; method of calculation of the planned cost of goods, works and services costing indirect costs; new approaches to the management of operations, including modern technologies in production and operations management.

**University education and social communication** purpose of teaching this discipline is to summarize: the vision of students of higher education as a subsystem of the educational area and socio-cultural environment, mastery of knowledge, abilities and skills necessary to understand its potential systemoformuyuchoho; knowledge of basic principles, principles, practices and perspectives of the Bologna process. The objectives of the study subjects are: knowledge and understanding of the students of the place and role of higher education in the structure of the educational system, the mastery of experience analyzing the theoretical foundations of the functioning of modern Higher Education; major trends, factors and forms; creating an understanding of integration processes in education, basic principles, results and prospects of the Bologna process.

## 2. Elective academic disciplines

### 2.1. Disciplines offered by University

Annotations of disciplines “History of Ukrainian Statehood”, “Ethnocultural”, “Philosophy”, “Ukrainian for Professional Purposes”, “Foreign Language (English, German, French, Spanish)”, “Physical Training”, “Labour and Life Safety”, “Legal Personal Culture” see Section 2.1.

**The technology of crop production.** Scientific bases of crop production. Modern agricultural technologies. Technological maps silskohospodarskyh growing crops. The concept of the programmable growing crops.

**Technology of production of livestock products.** The current state of the livestock industry. Forage. The impact of standardized feeding, breeding, means the animals on their level of performance. Milk, meat, eggs, wool etc.

### 2.2. Disciplines offered by students

**Logic** Objective: To provide students basic training in the fields of system knowledge of basic laws and forms of logical thinking, forming conscious attitude to the process of right thinking through scientific concepts and terms to familiarize students with the theory of logical thinking. The task of discipline is shaping students' skills of correct logical thinking for making good decisions in the future professional work, to participate in discussions and business communication, information processing, for logical and correct substantiation arguments and beliefs opponents; familiarizing students and methodological assistance in mastering a certain amount of knowledge about the means of intellectual activity, its shape and laws, understanding and assimilation of features forms and laws of thought; providing logical and methodological level studies while training.

**Sociology.** Essence of Sociology. Formation of human behavior in the workplace and place of activity in the process of motivation system and means of social control. The role of labor and small groups in achieving production purposes.

**Political Science.** Laws, structure and functions of political science. Power and power relations. The political system of society, the place and role of the state in it. Political consciousness and political culture. Politics and national relationships. Politics and ecology. National and state development of Ukraine.

**Religious Science.** This is a complex area of human cognition that studies patterns of emergence, history and general characteristics of religious beliefs. It explores social and historical nature of religion, its mechanism of social ties with the spiritual, political and economic systems of society.

**Cultural and Educational Activities.** Culture and spiritual development of the individual and society. Features of enrichment of the spiritual world and cultural development of the nation.

**Basics of Rhetoric.** Subject of rhetoric, the essence of the concepts and all sections of classical rhetoric. Modern science: neorhetoric, style, poetics, pragmatics, theory of communication etc.

**Psychology and Pedagogics.** Formation of knowledge about the psyche of the individual as the highest value of society; awareness of the nature of the mechanisms of mental processes, states, personality traits as the foundation of its formation in the process of education and training. The acquisition of key terms and concepts of psychology and pedagogy at their reproduction and interpretation; gaining basic skills to apply them in practice to improve competitiveness in professional social and psychological sphere.

**Databases and Database Course** objective - to obtain knowledge of the theoretical foundations of databases, database management, learning basic principles and methods of database (DB) and database management systems (DBMS). Objectives of the course: to master the basic concepts of information database requirements put forward to them the principles of their construction and composition; database development "Access"; practical skills in using databases "Access" to solve economic problems.

**Information Systems and Technologies in Accounting and Audit.** The basics of accounting, composition of accounting tasks, features of their solving using various technologies of economic information processing; acquiring skills to perform typical accounting problems; develop algorithms to solve them using database management systems and application programs.

**The tax system** Objective: To ascertain 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.

Objective: To study the theoretical and organizational bases of tax calculation methodology and manner of payment of taxes and obligatory payments of businesses and individuals.

**Insurance** Purpose: formation of 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. Objective: sustainable knowledge acquisition by the students of the theory and practice of management of the insurance company; insurance services; risk assessment; settlement of insurance claims.

**Insurance services** principles and role of insurance services. Classification of insurance, insurance risks and their evaluation. Insurance market and its characteristics, insurance companies, government regulation of insurance. Personal insurance. Property insurance companies and individuals

**Fundamentals exchange** Discipline "Fundamentals of stock activity" is studying the mechanism of implementation and technology exchange activities of commodity exchanges in the country and in emerging economies. The purpose of the study course - the formation of future specialist theoretical foundations and practical skills of the exchange activity and effective use of exchange operations in its future activities. Course description: Formation at students knowledge on the organization of exchange activities; acquisition of practical skills: organization of trade on the exchange of goods, securities, currencies; of relationships with brokers; exchange information for use of high-efficiency production and marketing of agricultural products.

**Stock Exchange Activities.** Fundamentals of exchange activity. Commodity, stock and currency exchange. Stock exchange transaction, the procedure of agreements conducting and exchange trading mechanism.

**Infrastructure commodity market** aim of teaching is learning the theory of commodity market infrastructure, management of the company in advance, storing and selling goods and services that meet the needs of consumers. The main objectives of the discipline "Infrastructure commodity market" are: understanding the nature and functions of market infrastructure; mastery of knowledge about the organization and planning of enterprises in the market; Scorecard study commodity market infrastructure and methods of formation; acquiring skills to independently perform technical and economic analysis related to the analysis and substantiation of effective functioning and development of the infrastructure of the commodity market.

**Finance companies** The purpose of teaching the course "Business Finance": the provision and deepen students' knowledge of the theory and practice of financial relations business entities. Tasks of the course: clarify the nature of the financial resources of enterprises, methods and sources of their formation of financial activity; gaining skills settlements of receipts, income, its distribution, the impact of taxation on the use of profits; determine the need for working capital, sources of financing reproduction of fixed assets and their efficient use; mastering methods of assessing the financial condition of sanitation companies.

**Investment.** Methodological bases of investment. Forms, objects and areas of investment. Investment risks. Financial support of investment. Budgeting of project management and investment process.

**International Finance.** The system of international finance, the evolution of the global monetary system, international financial market and its structure, foreign exchange and foreign exchange transactions, bank loans international market, especially the functioning of the European market.

**Audit.** The application of elements of the organization registers of synthetic and analytical accounting. Accounting for funds, payments, inventory, fixed assets, intangible assets, remuneration systems, variants of production costs, the definition of production costs. Functions of the audit: validation of the balance sheet and recording of profit and loss, analysis of accounting, its compliance with the law; respect for the equality of shareholders rights during the distribution of dividends and voting.

**Accounting in the fields of national economy.** Fundamentals of Accounting in the fields of national economy. Revenue, expenses and payments. Accounting for fixed and current assets, equity.

**Reporting of the Enterprises.** General reporting requirements. Balance sheet. Income statement. Statement of cash flows. Statement of changes in equity. Errors correction and changes in the financial statements. Overall and consolidated reporting. Financial report of a small business. Tax reporting. Statistical and special reports.

**Managerial Accounting.** Principles and methods of managerial accounting, its place and role in the management of the company; acquiring skills to apply appropriate methods and techniques in the cost accounting and calculation in order to make effective management decisions.

**The economy of agricultural enterprises** The purpose of discipline "Economics of agrarian business" is to acquire knowledge of the basic laws of economics innovation development of agriculture, the formation of resource potential of the agricultural sector, determining the economic efficiency of agricultural production and study measures for its improvement. The level of knowledge of agricultural economics provides students acquiring skills in economic activity and readiness to practice in agricultural enterprises. The task of discipline: students gain knowledge and skills on issues such as the economic basis of the effective use of land resources; formation of resource potential of agriculture and rational justification for the combination of its constituent elements; placing agriculture; intensification of agricultural production on the basis of innovation; providing the necessary conditions for expanded reproduction and accumulation in agriculture;

**Environmental Economics.** Ecology and modern agriculture. Ecological agriculture and crop production. Environmental issues of the livestock concentration. Environmental expertise, assessment, monitoring and forecasting with the use of mathematical modeling. Environmental law, legislative support. Interaction between environmental and economic factors, maintaining proper environmental quality, resource conservation. Indicators of ecological, economic and social efficiency of environmental measures, changes of psychological conditions and socio-hygienic condition.

**Fundamentals of Agricultural Consulting Material** discipline "Fundamentals of Agricultural Consulting" aims to explore methods development, dissemination and innovation. The main objective of the course "Fundamentals of Agricultural Consulting" - form a system of student knowledge and skills in agricultural extension, agricultural experts emphasize the role profile as consultants. In the study course served characterization systems and models of advisory services in the world and Ukraine, their characteristics and place in the agrarian economy of the state, considered the objectives, methods advisory activity, its psychological and ethical aspects, especially the use of modern information technology and organization consulting international experience

**Agricultural Economy.** The system of industrial relations in conjunction with the productive forces in agriculture. Ways and means of rational use of land, material and labor, intensification of agricultural production based on science and technology, specialization, cooperation and integration of agricultural enterprises, the development of commodity-money relations, ways to improve production efficiency.

**The economy of rural communities** aim of the course is to deepen knowledge about the structure and of the functioning of the rural sector in Ukraine, instill skills analysis of the current state and identify disparities in the development of its components and the development of measures to overcome them; help students get acquainted with legal regulations and research on the status and prospects of socio-economic development of settlements, rural employment, establishment of new forms of economic activity in rural areas and others. The objectives of the course are: to form a future expert, able to assess the economic, social, demographic and ecological situation in every region, district, village in the formation of a social market economy, learn to identify priorities and substantiate effective instruments and mechanisms for solving problems overcoming depression village areas to diversify their economic base and creating a socially attractive and environmentally safe living conditions for the rural population; skills to analyze cause and effect of the rural sector and the impact of internal and external factors;

**Basics of Research in Economics.** Scientific education of student, research in economics, methodology of scientific research.

**Rationing and wages** Within the course "Rationing and wages," the theoretical, methodological and practical issues related to the regulation and organization of wages in the process of modern enterprises. The main goal of discipline is to form future professionals understanding the conceptual bases of valuation work in modern conditions, the use of modern forms and pay systems in the enterprise. The subject of the study are common patterns and characteristics of regulation and remuneration of the personnel organizations. The primary purpose of teaching is to form a complex theoretical knowledge and skills to develop and implement a rational organization of personnel, rationing and wages that ensure high efficiency of the staff.

**Labor Sociology.** The essence, content, nature and function of labor. Formation of human behavior in the workplace activity. The role of labor and small groups in achieving production goals. Optimization of socio-psychological climate in the team.

**Organization and wages.** General laws and features of organization and pay staff. Setting conditions (rules) of pay, job duties installation worker definition of payment account for individual and collective results of work; order changes in the organization of wages.

**Theory of Goal:** formation of a modern, system-based approach, the outlook for the establishment, operation and evolution of organizations.

**Objective:** To provide students knowledge about theory and practices of organizations in today's changing market socio-economic environment, the regulation of which they take place in conjunction with the environment, etc; study of organizational theories; study of theoretical and methodological principles of creation and functioning of organizations; mastering basic methodological approach of analyzing the internal and



external environments of organizations; acquiring skills building organizational structures of different types of organizations; skills transformation, creating the image and culture organizations.

**Agribusiness Organization.** Entrepreneurship and business in agriculture: the nature, objectives, benefits. Characteristics of businesses. Drawing up of business plans.

**Economic analysis** The purpose of discipline study course "Economic Analysis" is to develop knowledge about methods of systematic evaluation of agricultural enterprises, identify internal reserves rational use of material, labor and financial resources. The logic and structure of the course "Economic Analysis" will allow students to learn the necessary amount of knowledge that makes it possible to achieve a high level of professional competence and economic future professionals. Task. On the methodological principles of civilizational paradigm of society form the modern economic thinking and outlook of students to ensure their mastery of knowledge and methods of analysis of economic laws and processes.

**Financial Analysis** The purpose of discipline "Financial Analysis" is to develop in students the modern economic thinking and system expertise in the theory and methodology of financial analysis, a clear idea of the content of financial and economic activity in a market economy, the causal relationship between economic phenomena and financial processes, structure information supply management; skills of management decisions to address the financial situation; mastery of skills and financial analysis. The objectives of the discipline that must be solved in the course of the study are: formation of students of modern economic thinking and system expertise in the theory and methodology of financial analysis, a clear understanding of the content of financial and economic activity in a market economy, the causal correlation bandages economic phenomena and processes financial structure with information of management; skills of management decisions to address the financial situation; mastery of skills and financial analysis.

**Regional economy** The objective of the discipline is learning the theory of productive forces and regional economy and regional development of scientific bases of regional economic policy; mastery of knowledge about territorial and sectoral structure of economic complex of Ukraine and its economic regions and so on. The aim of the course is to develop knowledge on the theoretical and practical bases of the territorial organization of the productive forces of Ukraine, the current state and trends of regional economic development.

**National Economy.** The theoretical and organizational framework for regulating the national economy. Forecasting, macroeconomic planning and programming in the regulation of the national economy. Methods of state regulation of the economy.



**Bachelor**  
**in specialty "ACCOUNTING AND TAXATION"**  
**field of knowledge "Management and Administration"**

Form of Training:	Licensed number of persons:
– Full-time	150
– Part-time	140
Duration of Training	4 years
Credits	240 ECTS
Language of Teaching	Ukrainian, English
Qualification	Bachelor in Accounting and Taxation

**Concept of training**

The specialty "Accounting and Taxation" trains specialists aimed at in-depth study of the theory and practice of accounting, auditing and taxation in the agricultural sector of the economy. An important direction of such training is the orientation of students on independent work, the development of creative activity of finding effective solutions to the problems studied, acquiring skills by the study of scientific literature, current legislation and the ability to meet international standards and critically evaluate the process of analysis, auditing and taxation in specific enterprises, to develop effective proposals for the accounting and management improvement in general.

Graduates have the right to occupy the positions of chief accountant; accountant in the agricultural sector, SMEs, trade; auditor, auditor-diagnostician, accountant, specialist of tax and controlling and auditing services, financial, bank and budgetary institutions.

**Practical training**

Practical training is carried out at the following enterprises:

- PS RF "O.M. Muzychenko Velykosnitynske" of the NULES of Ukraine (Kyiv region)
- "Agronomic Research Station" of the NULES of Ukraine (Kyiv region)
- Training and Research Farm "Vorzel" of the NULES of Ukraine (Kyiv region)
- Other bases of practical training of students of the University from among leading institutions, enterprises, organizations of any ownership pattern 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 Bachelor theses**

1. Accounting and audit of the financial results.
2. Accounting and cost analysis of grain production.
3. Accounting and audit of fixed assets and intangible assets depreciation
4. Accounting and audit of Income tax payments to the budget
5. Accounting and audit of payments to suppliers and contractors

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

### **Employment of Graduates**

Chief accountant; deputy chief accountant; senior accountant; chief cashier; accountant of I category; accountant of II category; accountant; auditor; assistant auditor; senior accountant-auditor; accountant-auditor of I category; accountant-auditor of II category; accountant-auditor; accountant-expert; expert-accountant; chief auditor; head cashier, etc.

### Bachelor`s Program and Curriculum in Specialty «Accounting and Taxation»

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Political Economy	1,2	150	5
2	Microeconomics	3	120	4
3	Macroeconomics	4	120	4
4	History of Economics and Economic Thought	1	90	3
5	Mathematics for Economists	1,2	210	7
6	Probability theory and Mathematical Statistics	2	150	5
7	Taxation System	5	120	4
8	Economic modeling	6	120	4
9	Econometrics	5	120	4
10	Computer Science	1,2	180	6
11	Economics of Enterprise	5	120	4
12	Management	3	120	4
13	Marketing	4	120	4
14	Money and Credit	3	120	4
15	Finance	4	120	4
16	Theory of Accounting	3,4	240	8
17	Labor Economics and Social and Labor Relations	5	120	4
18	International Economy	4	120	4
19	Statistics	3,4	180	6
20	Analysis of Economic Activity	6	120	4
21	Financial Accounting	5,6	240	8
22	Managerial Accounting	7	120	4
23	Reporting of the Enterprises	7	120	4
24	Accounting in Banks	8	120	4
25	Accounting in the public sector	6	120	4
26	Accounting and Reporting in Taxation	8	120	4
27	Audit	8	120	4
28	Organization and Planning of Production in Agricultural Enterprises	7	120	4
29	Economic legislation	7	120	4
30	University education and social communication	2	60	2
31	Finance of the Enterprise	5	120	4
Total for standard part			4140	138
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukrainian statehood	1	90	3
2	Ethnic and cultural studies	1	90	3
3	Philosophy	3	120	4
4	Ukrainian for professional purposes	2	120	4
5	Foreign language	1,2,3	150	5
6	Labour and life safety	1	120	4
7	Legal culture of personality	3	60	2
8	Physical training	2,4	120	4
9	Crop Production Technology	1	90	3
10	Livestock Production Technology	2	90	3
11	Crop Processing, Storage and Standardization Technology	4	90	3
Total (Disciplines offered by University)			1140	38
2.2. Disciplines offered by students				
1,2	Political Science	5	120	4
1,2	Sociology	5	120	4
1,2	Information Technologies and Media of Education and Scientific Communications	5	120	4

**CURRICULA AND PROGRAMS OF BACHELOR DEGREE**

1,2	Religious Science	5	120	4
1,2	Logics	5	120	4
1,2	Basics of Rhetoric	5	120	4
1,2	Ethics and Aesthetics	5	120	4
1,2	Cultural and Educational Activities	5	120	4
1,2	Psychology and Pedagogics	5	120	4
1,2	Labor Sociology	5	120	4
1,2	Economic and Legal Business Environment	5	120	4
1,2	Social Responsibility	5	120	4
3.	Stock and Commodity Exchange	6	120	4
3.	Stock Exchange Activities	6	120	4
4.	The computer accounting in commercial activities	6	120	4
4.	Computer Accounting	6	120	4
4.	Information Systems and Technologies in Accounting and Audit	6	120	4
4.	Database and DBSM	6	120	4
5.	Agricultural Economy	6	120	4
5.	Environmental Economics	6	120	4
5.	Economy of Global Agriculture	6	120	4
5.	Basics of Agrarian Consulting	6	120	4
5.	Economics and Organization of Agriservice	6	120	4
5.	Cost management	6	120	4
6.	Mortgage Lending	7	120	4
6.	Banking System	7	120	4
6.	Price and Pricing	7	120	4
6.	Financial Market	7	120	4
6.	Insurance	7	120	4
6.	Investment	7	120	4
7,8	Computerized accounting in the public sector	7	120	4
7,8	Computer Audit	7	120	4
7,8	Accounting in Sectors of the National Economy	7	120	4
7,8	Accounting Systems and Models	7	120	4
9.	Project Analysis	8	120	4
9.	Models and Methods in Analysis and Audit	8	120	4
9.	International Taxation	8	120	4
10.	Accounting in Foreign Countries	8	120	4
10.	Basics of Research in Economics	8	120	4
10.	Agribusiness Organization	8	120	4
11.	Regional Economy	8	120	4
11.	National Economy	8	120	4
<b>Total for Specialization</b>			<b>1320</b>	<b>44</b>
<b>Total (Disciplines offered by students)</b>			<b>1320</b>	<b>44</b>
<b>Total for elective part</b>			<b>2460</b>	<b>82</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training course		690	23
2	Production Practice		300	10
<b>Bachelor Thesis writing (Graduate thesis or Project)</b>			<b>60</b>	<b>60</b>
<b>State Attestation</b>			<b>60</b>	<b>60</b>
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Political Economy.** Commodity production and business. Social reproduction and economic growth. Basic social forms of production and their evolution. World economy and global market.

**Microeconomics.** Modern elements of the microeconomic environment and their activities in terms of the social market economy. Techniques and methods of making economic decisions at the micro level for the businesses to survive in the current economic environment of the market economy.

**Macroeconomics.** Macroeconomic processes in terms of construction and development of market economy in Ukraine. The system definition, problem solving and ways to achieve solutions. Establishing relationships and determine the order of relations between objects and subjects of macroscopic environment. Solving macroeconomic challenges.

**History of Economy and Economic Thought.** Economic theory in the era of pre-capitalist modes of production. The classical school of bourgeois political economy. Economic thought in Ukraine. Neoliberalism and its various forms. The development of Soviet economic thought. Economic thought of the transition period.

**Mathematics for Economists.** Provides: forming of individuality of students to develop their intelligence, logical skills and algorithmic thinking; mastering the basics of mathematical tools necessary to solve theoretical and practical problems of the economy; ability to examine independently the scientific literature on mathematics and apply it; to increase the general level of mathematical culture; develop the ability to make mathematical models of certain economic processes; teaching methods of processing and analysis of the results.

**Probability theory and Mathematical Statistics.** Events, probability, repetition of experiments, the laws of probability distribution, numerical characteristics of random variables, system functions and random variables, probability theory, probability models of economic problems.

**Taxation System.** The study of theoretical and organizational bases of taxation, calculation methodology and procedure for payment of taxes and obligatory payments of businesses and individuals.

**Economic modeling.** Creating models of economic systems through various economic and mathematical models and solving problems to anticipate the construction and management of modern agricultural enterprises. Methods of nonlinear programming, solving the transport problem and other urgent economic problems of the agricultural production.

**Econometrics.** The quantitative evaluation of the relationship between economic indicators for different sets of economic information, resorting to testing the latest on compliance of certain preconditions and to determine methods for quantitative measurement of relations, which should be used in each case in accordance with the peculiarities of economic information.

**Computer Science.** Principles of construction and operation of computers, organization of computing processes on the PC and their software, work on a PC with algorithmic programming languages, program structure and recommendations for its writing. Effective use of modern information and communication technologies in professional activity.

**Economics of Enterprise.** The economic mechanism of functioning of the company, its development and use of resource potential in order to optimize economic performance.

**Management.** Theoretical Foundations of Management, manager in the management system. The motivation and rules of managerial activities. The mechanism of control and accountability in the management system.

**Marketing.** The essence, content of marketing and its concept and system characteristics of modern marketing and marketing policies: heading, pricing, communication and distribution.

**Money and Credit.** Origin, essence and function of money and credit, the form of money and credit relations, structure of monetary and credit systems, patterns of money, the stability of financial systems and areas of improvement monetary and credit relations in Ukraine and particularly in agriculture.

**Finance.** Essence, types and functions of agribusiness finance. Finance of the companies, formation and use of profit, working capital lending, financial support, reproduction of fixed assets, financial indicators and their evaluation.

**Theory of Accounting.** Subject and method of accounting. Balance sheet. Documentation as part of the method of accounting system accounts. Methodology of accounting processes in business. Chart of Accounts. Registers and forms of accounting.

**Labor Economics and Social and Labor Relations.** Examines the methodology and methods of analysis of internal labor market planning and employment indicators at the enterprise; skills for solving practical problems of labor economics.

**International Economy.** Marketing in foreign economic activity. Export-import transactions of raw materials, industrial and agricultural goods. Joint business activities. Methods of foreign trade. State regulation of foreign economic relations.

**Statistics.** The organization of supervision, construction and analysis of statistical data using methods of groupings, averages and indicators variation, correlation and dispersion calculations, evaluation of time-spatial changes of mass social phenomena.

**Financial Accounting.** Methods and organizations of the financial accounting of assets at the enterprise using advanced forms of national standards. Methods and organizations of the financial accounting of the capital and obligations at the enterprise using advanced forms of national standards.

**Managerial Accounting.** Principles and methods of managerial accounting, its place and role in the management of the company; acquiring skills to apply appropriate methods and techniques in the cost accounting and calculation in order to make effective management decisions.

**Reporting of the Enterprises.** General reporting requirements. Balance sheet. Income statement. Statement of cash flows. Statement of changes in equity. Errors correction and changes in the financial statements. Overall and consolidated reporting. Financial report of a small business. Tax reporting. Statistical and special reports.

**Accounting in Banks.** General theoretical basis and principles of accounting; technical support and accounting software; accounting nomenclature and accounting information media; circulation of documents; accounting policies of the bank; organization of the accounting of the key banking operations.

**Accounting in the public sector.** Fundamentals of accounting in budgetary institutions. Revenue, expenditure and payment transactions. Accounting for non-current and current assets, equity.

**Accounting and Reporting in Taxation.** Accounting and reporting procedure for income tax, VAT, excise tax, personal income and local taxes and fees, property and resource payments and the accounting and reporting in the special tax regime.

**Audit.** The application of elements of the organization registers of synthetic and analytical accounting. Accounting for funds, payments, inventory, fixed assets, intangible assets, remuneration systems, variants of production costs, the definition of production costs. Functions of the audit: validation of the balance sheet and recording of profit and



loss, analysis of accounting, its compliance with the law; respect for the equality of shareholders rights during the distribution of dividends and voting.

**Organization and Planning of Production in Agricultural Enterprises.** The scientific basis for the organization, production planning, utilization of productive capacities in various spheres of agricultural enterprises, organization of industrial and economic relations in the AIC in market conditions.

**Economic legislation.** It is studied the basic legal institutions of general economic legislation, as well as the regulation of certain spheres of economic life on the basis of economic and commercial procedural legislation of Ukraine.

**University Education and Social Communication.** Preparing students to study at the university in accordance with modern international integration processes in education in the context of the Bologna Declaration.

**Finance of the Enterprise.** Essence, types and functions of the company's finance. The system of noncash and cash payments. The formation and use of gross and net income and earnings, working capital lending, financial support, reproduction of fixed assets.

## **2. Elective academic disciplines**

### ***2.1. Disciplines offered by University***

Annotations of disciplines "History of Ukrainian Statehood", "Ethnic and Cultural Studies", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language", "Labour and Life Safety", "Legal Personal Culture", "Physical Training", see Section 2.1.

**Crop Production Technology.** Scientific bases of crop production. Modern agricultural technologies. Technological maps for the crops growing. The concept of the programmable growing of crops.

**Livestock Production Technology.** The current state of the livestock industry. Forage. Effect of normalized feeding and breeding on their productivity. Milk, meat, eggs, wool production etc.

**Crop Processing, Storage and Standardization Technology.** Principles of postharvest processing (cleaning, drying, ventilating, cooling), storage and processing. Manufacturing technology of flour, groats.

### ***2.2. Disciplines offered by students***

**Political Science.** Laws, structure and functions of political science. Power and power relations. The political system of society, the place and role of the state in it. Political consciousness and political culture. Politics and national relationships. Politics and ecology. National and state development of Ukraine.

**Sociology.** Essence of Sociology. Formation of human behavior in the workplace and place of activity in the process of motivation system and means of social control. The role of labor and small groups in achieving production purposes.

**Information Technologies and Media of Education and Scientific Communications.** The study of the theoretical foundations and basic technologies of computer analysis and processing of information; the use of modern software and computer technologies and user applications professional nature.

**Religious Science.** This is a complex area of human cognition that studies patterns of emergence, history and general characteristics of religious beliefs. It explores social and historical nature of religion, its mechanism of social ties with the spiritual, political and economic systems of society.

**Logics.** Forming of logical culture of professional thinking; understanding of general cultural significance of logical theory; development of natural capabilities of human thinking, enhancing its creative potential; clarifying the logical foundations of thinking activity formalization, algorithmic information technology.

**Basics of Rhetoric.** Subject of rhetoric, the essence of the concepts and all sections of classical rhetoric. Modern science: neorhetoric, style, poetics, pragmatics, theory of communication etc.

**Ethics and Aesthetics.** Gives knowledge about the features and characteristics of moral and artistic relationship between man and the world, the development of basic functions performed by the ethics and aesthetics in the knowledge of all areas of human life, the structure of these areas, the content of the main categories and value of such knowledge to work in different areas of human activity .

**Cultural and Educational Activities.** Culture and spiritual development of the individual and society. Features of enrichment of the spiritual world and cultural development of the nation.

**Psychology and Pedagogics.** Formation of knowledge about the psyche of the individual as the highest value of society; awareness of the nature of the mechanisms of mental processes, states, personality traits as the foundation of its formation in the process of education and training. The acquisition of key terms and concepts of psychology and pedagogy at their reproduction and interpretation; gaining basic skills to apply them in practice to improve competitiveness in professional social and psychological sphere.

**Labor Sociology.** The essence, content, nature and function of labor. Formation of human behavior in the workplace activity. The role of labor and small groups in achieving production goals. Optimization of socio-psychological climate in the team.

**Economic and Legal Business Environment.** State policy in the sphere of services should be designed to provide facilities to competition has implemented all its functions at the optimum of its intensity. This policy opens space for technical and technological progress (innovation under the pressure of competition). It is a prerequisite for effective flexible adaptation of business in the market to a changing competitive environment (adapting the pressure of competition).

**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.

**Stock and Commodity Exchange.** Exchange activities. Commodity, stock and currency exchange. Stock exchange transaction, the procedure for concluding and mechanism of exchange trading in the stock market.

**Stock Exchange Activities.** Fundamentals of exchange activity. Commodity, stock and currency exchange. Stock exchange transaction, the procedure of agreements conducting and exchange trading mechanism.

**The computer accounting in commercial activities.** Computer technology of accounting in agricultural enterprises.

**Computer Accounting.** Automation of accounting and tax accounting, including the preparation of mandatory reporting, organizations engaged in any activities: trade in goods, services, production.

**Information Systems and Technologies in Accounting and Audit.** The basics of accounting, composition of accounting tasks, features of their solving using various technologies of economic information processing; acquiring skills to perform typical

accounting problems; develop algorithms to solve them using database management systems and application programs.

**Database i DBSM.** Database and database system management. Data models. Database objects: tables forms, queries, reports, macros, modules. Linking tables. Import and export of data.

**Agricultural Economy.** The system of industrial relations in conjunction with the productive forces in agriculture. Ways and means of rational use of land, material and labor, intensification of agricultural production based on science and technology, specialization, cooperation and integration of agricultural enterprises, the development of commodity-money relations, ways to improve production efficiency.

**Environmental Economics.** Ecology and modern agriculture. Ecological agriculture and crop production. Environmental issues of the livestock concentration. Environmental expertise, assessment, monitoring and forecasting with the use of mathematical modeling. Environmental law, legislative support. Interaction between environmental and economic factors, maintaining proper environmental quality, resource conservation. Indicators of ecological, economic and social efficiency of environmental measures, changes of psychological conditions and socio-hygienic condition.

**Economy of Global Agriculture.** The economy of world agriculture and FEA - the current state of global agriculture. The economic system and the overall performance of the world, Ukraine's place in global agriculture. The world market of agricultural products.

**Basics of Agrarian Consulting.** Consulting (advisory) activities as a method of management and type of business. Learning how to work with farmers and rural population for the development and implementation of the innovations, application techniques of mass dissemination of information, group and individual teaching methods and counseling, psychological and ethical aspects of the advisory.

**Economics and Organization of Agriservice.** Planning and organization of production provision in agricultural enterprises. Improving economic relations between production and service spheres of AIC.

**Cost management.** The purpose of discipline is to present the necessary theoretical foundations, methodological approaches and practical knowledge of the principles, techniques and methods development and implementation of the overall strategy and direction of production activity of industrial enterprises; to develop and implement modern industrial system, including the development of the production process, decisions concerning the location of production facilities, design enterprise products, the introduction of standards and regulations for works; to plan and control current operation of the production system. To achieve this goal are made the following tasks: research productions in their relationship that formed under the influence of objective economic laws and subjective factors; scientific substantiation of decisions on the assessment of business plans with an objective assessment of their performance.

**Mortgage Lending.** Organization of the mortgage in financial institutions and principles of the system of mortgage lending in general. Studying theory and practice of credits secured by real estate.

**Banking system.** Revealed the theoretical aspects of the study of various banking services, from traditional deposit, credit and cash transactions that form the basis of banking - to the latest forms of monetary and financial instruments that are used by banking institutions.

**Price and Pricing.** Theories of pricing, pricing methods. Marginal utility of price, methodological atypical pricing in terms of inflation, ensuring equivalence of accounting and prices in AIC.

**Financial market.** Features of the money market, Ukrainian and international capital markets, foreign exchange and derivatives segment, the specifics of various financial institutions.

**Insurance.** The essence, principles and role of insurance. Classification of insurance, insurance risks and their assessment. Insurance market and its characteristics, insurance companies, government regulation of insurance activity. Personal insurance. Property insurance of the companies and individuals.

**Investment.** Methodological bases of investment. Forms, objects and areas of investment. Investment risks. Financial support of investment. Budgeting of project management and investment process.

**Computerized accounting in the public sector.** It is studied computer technology accounting in the public sector.

**Computer Audit.** The economic essence, functions, role and scope of the audit in terms of computer technology, content and timing of audit concepts, classification of computer software, organization of audit and audit opinion, specifics of the company's audit using computer information systems, setting up computerized audits and internal controls.

**Accounting in Sectors of the National Economy.** Features of methods and organization of accounting in trade enterprises, budgetary institutions and credit institutions and industry.

**Accounting Systems and Models.** The purpose of discipline is to acquire knowledge about features, difficulties and contradictions in the formation, development and application of methods (tools) in the accounting in different enterprises and development of international systems and models of accounting.

**Project Analysis.** Alternatives and implementation of market approaches to meet social needs. The study of modern methods of investment projects management of economic entities.

**Models and Methods in Analysis and Audit.** The essence, principles and methodological bases of methods and models in the development of managerial decisions. Methods of solutions development for the breakeven of the enterprise. Methods and models of management development solutions for real and financial investments and assets. Methods and models of strategic management and forecasting of the enterprise.

**International Taxation.** Examines fundamental theoretical foundations of international tax practice of agreements on avoidance of double taxation and using methods of international tax planning.

**Accounting in Foreign Countries.** Theory and practice of financial and managerial accounting in foreign countries; acquiring skills in organization of accounting, analysis and control based on existing legislation.

**Basics of Research in Economics.** Scientific education of student, research in economics, methodology of scientific research.

**Agribusiness Organization.** Entrepreneurship and business in agriculture: the nature, objectives, benefits. Characteristics of businesses. Drawing up of business plans.

**Regional Economy.** Scientific basis of productive forces and economic organization based on natural resources, scientific and technological progress. Features of economic development of individual regions of Ukraine.

**National Economy.** The theoretical and organizational framework for regulating the national economy. Forecasting, macroeconomic planning and programming in the regulation of the national economy. Methods of state regulation of the economy.

**Bachelor**  
**in specialty "FINANCE, BANKING AND INSURANCE"**  
**field of knowledge "Management and Administration"**

Learning:	Licensed amount of persons:
- day	130
- extra	90
Training period	3 years 10 months
ECTS credits	240
Language teaching	Ukrainian, English
Qualification of graduates	Bachelor of Finance, Banking and Insurance

**The concept of training**

"Finance, Banking and Insurance" are trained professionals who are at a high level can provide maintenance and financial accounting at the company. Ensure the preparation of financial statements. Take measures to determine the financial condition of the company and increase its effectiveness. Monitor the conduct cash transactions, rational and efficient use of material, labor and financial resources. To be able to apply the theoretical and practical knowledge for effective management of the enterprise financial accounting. To be able to develop proposals to improve financial. Accounting and Economics at the company.

**Practical training**

Practical training is an integral part of the educational process of training specialists of different educational levels in economics. Entry professional practical skills of highly qualified specialists is possible only if direct participation in industrial manufacturing processes at the agricultural enterprises of different ownership units and research institutions.

**Proposed Topics for Bachelor theses**

1. Financial support for farms
2. Mechanism of regulation of the financial market in Ukraine
3. The development of credit market in Ukraine
4. Systema taxation of businesses and ways to reform
5. The development of the life insurance market in Ukraine

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of Graduates**

Financier; Economist Planning and Finance Department; Head of the Laboratory of Scientific and Production Management, Economist, Economist, Planning, economist at the contract work claims, an economist at financial work, assistant managers and financial departments of companies, associations, firms serving areas APK different ownership and so on.

### Bachelor's Program and Curriculum in Specialty "Finance, Banking and Insurance"

№	Name of discipline	Semester	Volume	
			hours	ECTS credits
1. MANDATORY TRAINING COURSE				
1	Political Economy	1	150	5
2	Microeconomics	2	120	4
3	Macroeconomics	3	120	4
4	History of Economics and Economic Thought	1	150	5
5	Mathematics for Economists	1,2	210	7
6	Probability and Mathematical Statistics	2	150	5
7	Computer Science	2	120	4
8	Econometrics	4	90	3
9	Optimization methods and models	5	120	4
10	The tax system	7,8	150	5
11	Finance companies	6	150	5
12	Insurance	7	150	5
13	The budget system	5	120	4
14	Financial activities of business entities	7	120	4
15	Statistics	3,4	120	4
16	Money and credit	3,4	300	10
17	Finances	4,5	300	10
18	Accounting	3,4	120	4
19	Business Economics	6	120	4
20	Management	5	120	4
21	Marketing	6	120	4
22	Labor Economics and Labor Relations	4	120	4
23	International Economics	8	120	4
24	Banking system	7	150	5
25	Financial market	6	120	4
26	Financial analysis	8	120	4
27	University education and social communication	2	60	2
Along with mandatory component			3810	127
2. Selective Courses				
2.1. Disciplines by choice university				
1	History of Ukrainian statehood	1	90	3
2	Ethnocultural	1	90	3
3	Philosophy	3	120	4
4	Ukrainian language for professional purposes	2	120	4
5	Foreign Language	1,2,3	150	5
6	Physical Education	1,2,4	120	4
7	Safety and life	3	120	4
8	Legal culture of personality	4	90	3
9	The technology of crop production	1,2	150	5
10	Technology of production of livestock products	2,3	150	5
Total elective University			1200	40
2.2. Subjects chosen by the student				
1	Local finance	6	120	4
	treasury		0	
	International Finance		0	
2	Investment	6	120	4
	Budgeting entities		0	
	Financial planning at the enterprise		0	
3	Insurance services	6	120	4
	Bases of actuarial calculations		0	
4	Customs regulation of foreign economic activity	8	120	4
	Customs and tariff administration		0	
5	Analysis Banking	8	120	4



**CURRICULA AND PROGRAMS OF BACHELOR DEGREE**

	International Banking and Capital Markets		0	
	Payment		0	
6	Securities Transactions	7	120	4
	Financial and credit system of foreign countries		0	
	Office portfolio		0	
7	Logic	5	90	3
	science of law		0	
	Sociology		0	
	Politology		0	
	Psychology and Pedagogy		0	
	Family and domestic culture		0	
	History of Ukrainian Culture		0	
	Religious		0	
	Cultural and educational training		0	
	Basics of rhetoric		0	
8	Regional economy	7	120	4
	National economy		0	
9	Managerial Accounting	8	120	4
	Audit		0	
	statements		0	
	Accounting for banks		0	
10	Economic analysis	8	120	4
	Project analysis		0	
11	Economic and financial risks (in English)	7	120	4
	Economics of agro-industrial units		0	
12	Financial derivatives	6	120	4
	Price and pricing		0	
	Exchange Stock Market		0	
	Fundamentals of stock		0	
	asset management		0	
13	Rationing and wages	5	120	4
	Labor market		0	
	Human development		0	
	Sociology of labor		0	
14	Economics and Organization of Agroservice	5	120	4
	Economics of world agriculture		0	
	Mathematics for finance		0	
	Information systems and technology in finance		0	
	Databases and Database		0	
15	Cost management	7	120	4
	Organization and planning of production in agricultural formations		0	
	agribusiness Organization		0	
<b>Total elective students</b>			<b>1770</b>	<b>59</b>
<b>3. OTHER STUDIES</b>				
1	Military training		870	29
2	Educational practice		180	6
3	Internship		120	4
<b>Preparation of bachelor work (thesis or project)</b>			<b>60</b>	<b>2</b>
<b>State attestation</b>			<b>60</b>	<b>2</b>
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Political Economy** purpose of discipline is mastering future specialists fundamental economic knowledge, forming their logic of economic thinking and economic culture, teaching them the basic knowledge and methods of analysis of economic processes, the ability to make informed decisions about economic problems related to their future practitioners .

Objective: acquisition of appropriate skills of rational economic behavior, based on the conceptual foundations of a market economy, the modern understanding of the functioning of markets and pricing for the services of labor, capital, natural resources according to the type of market structure; skills analysis aggregates, determining factors and the effects of macroeconomic development of business systems and capacity of the state to correct this development in accordance with the objectives and priorities of economic policy.

**Microeconomics** purpose of teaching this discipline is to develop a market-oriented economic outlook, knowledge and skills regarding clarification of the mechanisms establishing and rebalancing microsystems and efficiency of economic entities. To achieve this goal the following tasks: learning motives, basic laws and methodological principles of behavior of economic agents in the market conditions at the micro level; universal mastering tools for self-analysis and study of optimal economic decisions in conditions of limited funds and the availability of alternatives.

**Macroeconomics** purpose of discipline study course "Macroeconomics" is to provide students deep theoretical knowledge on the economy - important sphere of human activity, the objective economic laws, familiarity with the methods and conditions of effective management and systematic holistic picture of macroeconomic theory and policy. Logic and structure of the course "Macroeconomics" will allow students to learn the necessary amount of knowledge that makes it possible to achieve a high level of professional competence and economic future professionals. Task. The main objectives of the course is to study issues such as methods for measuring the dynamics of domestic production; forming conditions and consequences of violation of macroeconomic equilibrium; the impact of inflation on unemployment and economic development; methods of state fiscal control; State instruments of monetary policy;

**History of Economics and Economic Thought** The purpose of the study: the development of knowledge about the basic stages of formation and direction of economic development and economic studies, conditions and patterns of evolution of the world economy, economics, economic concepts and areas of major schools of economic thought.

Subject disciplines: economy of the world historical development, the emergence and development of economic views and ideas prevailing in the system.

Content modules: economy and economic thought primitive societies period of the day and early nineteenth century., The world economy and main directions of economic thought XIX - XX centuries.

**Mathematics for Economists** The purpose of higher mathematics is the formation of individual students develop their intelligence and ability to logical and algorithmic thinking. The main tasks of the course is to master the basics of mathematical tools necessary for solving theoretical and practical economic problems; ability to independently discover, learn and apply the scientific literature and other information sources and resources on higher mathematics; working out mathematical skills in research applications, such as the ability to transfer specific economic problems in mathematical language with the following construction of a mathematical model.

**Probability and Mathematical Statistics** object of study discipline patterns are random events and use them to build economic stochastic models. The purpose of discipline is to develop basic knowledge and practical skills of the foundations of probabilistic and statistical system, the main methods of quantitative measurement of the randomness of the factors that affect any process, principles of mathematical statistics used in the planning, organization and production management, evaluation product quality, system analysis of economic structures and processes, application of mathematical methods in economics. The program involves the study of two structural modules - theory of probability and mathematical statistics.

**Computer science** Course objective science discipline is to develop knowledge of the principles of construction and operation of computers, organization of computing processes on personal computers and their algorithmization, PC software and computer networks, and effective use of modern information and communication technologies in professional activity. The main objectives of the course is to study the theoretical foundations of computer science and applied skills using economic data processing systems; of programming for the PC; Computer networks in the study of social and economic systems and solving problems of professional orientation. Provides meaningful study four modules: the architecture of the modern computer, advanced software processing of textual information, work with a spreadsheet software MS Excel and modern software processing graphic data

**Econometrics** The purpose of discipline "Econometrics" is of students' knowledge about the quantitative evaluation of economic performance relationships for different sets of economic information, the latter resorting to testing on compliance of certain preconditions. The objectives of the discipline that must be solved in the course of the study are: help students master the methods of construction and implementation of econometric models using a personal computer; gain knowledge about the use of econometric models in economic research; acquiring skills students summarizing the results of statistical analysis and development of appropriate management decisions.

**Optimization methods and models of educational** discipline aimed at mastering the methods for solving optimization problems of financial and farm management.

The object of study - economic, organizational and management systems. Knowledge of the "Optimization models and methods" required students to write a bachelor's and master's theses and research

**The tax system** Objective: To ascertain 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.

Objective: To study the theoretical and organizational bases of tax calculation methodology and manner of payment of taxes and obligatory payments of businesses and individuals.

**Finance companies** The purpose of teaching the course "Business Finance": the provision and deepen students' knowledge of the theory and practice of financial relations business entities. Tasks of the course: clarify the nature of the financial resources of enterprises, methods and sources of their formation of financial activity; gaining skills settlements of receipts, income, its distribution, the impact of taxation on the use of profits; determine the need for working capital, sources of financing reproduction of fixed assets and their efficient use; mastering methods of assessing the financial condition of sanitation companies.

**Insurance Purpose:** formation of 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. Objective: sustainable knowledge acquisition by the students of the theory and practice of management of the insurance company; insurance services; risk assessment; settlement of insurance claims.

**The budget system** purpose of the discipline - formation of knowledge on the organization and functioning of the budget system and its role in the socio-economic development. As a result of the discipline the student should know: the role and place of budget redistribution relations of society; general principles of the budget system and principles of the budget system; nature, functionality and features of the structure of the main elements of the budget system (consolidated budget, the state budget, local budgets); objectives, principles and methods of budget planning; basic techniques and sources of revenues, directions and forms of financing costs; common methodology for determining the volume of public spending to ensure the implementation of relevant state functions; basic principles and forms of credit, technology strategy and debt management.

**Financial activities of business entities** purpose of the course - is to provide students with theoretical knowledge about the development and implementation of integrated entities methods of money management, financial planning by traditional technology and budgeting, analysis of the internal and external environment, which forms the economic strategies of enterprises of different ownership and organizational - legal forms. The task of discipline - to form a theoretical understanding of financial concepts and practical methods and tools of processing financial information to be used for decision-making in the field of financial needs of the company and determine the optimal proportions in the assets and liabilities of the company. The object of the course is the financial organization of enterprises of all forms of ownership and organizational forms, key areas of financial management companies in the domestic and foreign markets.

**Statistics** The purpose of discipline "Statistics" is to develop basic knowledge of students, including mastering their professional knowledge and practical skills in methods and forms, types and methods of statistical monitoring of agricultural production, development and analysis of statistical data, promotion of economic thought adapted to the requirements of the market economy.

The task of discipline that must be solved in the course of the study: understanding the challenges set before the statistical service of Ukraine in the current market conditions; mastering theoretical positions and mastering practical skills to use statistical methods of analyzing mass social and economic phenomena and processes; skills summarizing the results of statistical analysis and development of appropriate management decisions;

**Money and Credit** The purpose of the course the course "Money and credit" is to give students theoretical and practical knowledge for the management of the organization cash flow (cash flows), to form the students a theoretical basis for the subsequent mastering the practice of using monetary tools in the system of economic regulation Ukraine . It is important is to study economic relations with a turnover of money, including as a means of circulation of credit relations in modern economy.

**Finance** purpose of discipline "Finance" is to develop basic knowledge of finance theory, learning patterns of their operation at the macro and micro levels as the theoretical basis of financial policy and financial system. The educational goal of the discipline involves the acquisition of knowledge in all areas of operation of the financial mechanism, namely form students of finance conceptual apparatus for use in practice; provide information on finances, the financial system of the state and its role in the functioning of the economy; learn to apply their knowledge in practice, make informed decisions and to solve the problem.

**Accounting** The goal of teaching "Accounting" is to develop the system of knowledge of the theory and practice of accounting in the company. The main objectives of the discipline "Accounting" is the study of methods and rational organization and

accounting in enterprises based on the use of progressive forms and national standards; study skills and use of accounting information in management.

**Economics of Enterprise.** The economic mechanism of functioning of the company, its development and use of resource potential in order to optimize economic performance.

**Management** The purpose of discipline - to give students a comprehensive system of knowledge about nature management in enterprises and organizations and agribusiness management skills of production processes in them; conditions for performance of business structures; diagnosis and designing system of agricultural management, appropriate goals and objectives of market economy in agriculture. The objective of the discipline is to train future professionals able to streamline the organizational structure and management system to create enterprise (organization), maintain stability and capacity, ensure the dynamic development and competitiveness, which precedes theoretical preparation of students for the administration and management of the agricultural sector.

**Marketing** The purpose of discipline "Marketing" is learning and mastering theoretical knowledge and practical skills on the application, the use of tools AMP; organization, planning, implementation, management agromarket activities of agricultural enterprises for the effective functioning of the markets for agricultural products and foodstuffs in Ukraine and abroad, and further development. The task of discipline "Marketing" is to get the students knowledge in the field of agricultural marketing; marketing research markets for agricultural products and foodstuffs; forecasting market conditions; inventory management products agricultural enterprises and their quality; pricing; distribution system and marketing of agricultural and food products; promotion of food products in domestic and foreign markets; and gain knowledge in planning agricultural marketing, management and control of agromarket

**Labor Economics and Labor Relations** purpose of discipline "Labor Economics and Labor Relations" is the mastery of scientific principles of labor groups, the principles and methods of valuation, organization and stimulation of work at all levels of economic management, better use of factors improving the efficiency of labor, and application of social protection.

Objectives of the course: to form the student body of knowledge of the laws of the market in agriculture and features of employment in rural areas; provide students with the practical skills of effective work processes in agriculture; arm techniques and methods of valuation work in various jobs in agriculture, learn to use directories legal materials; to train future professionals use different motivational incentives work effectively employees, adequate for certain conditions, forms and systems of remuneration; provide mastering social analysis methods and techniques of social partnership; introduce the experience of international organizations in the field of industrial relations, including the International Labour Organization.

**International Economics** The purpose of teaching "International Economy" is to develop a system of theoretical and applied knowledge of modern role, functional content and tools of international economics in a highly competitive environment, the laws of the modern global economy. The main objectives of the discipline is to develop in students a holistic idea about the specifics of international business; mastering categorical apparatus used in the commission of international trade; forming a system of knowledge about the theoretical foundations international environment analysis and evaluation of its attractiveness for foreign business.

**The banking system** Educational-methodical complex of discipline "Banking system" provides understanding of the fundamentals of the banking system, the aggregate banking operations and their characteristics, the basic principles of relationship banking institutions, order preparation and content of financial reporting, development of students theoretical problems and practical skills of self-realization transactions in the current



economic conditions. The purpose of discipline "Banking system" 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 Markets** purpose of discipline is to enhance the knowledge and skills students about the deepening of the financial market operations, the mechanism of their characteristics and development of global stock, the policy of Portfolio Investment. Tasks of the course - to submit the required extent theoretical material, which includes research and development of domestic and foreign scientists; give structural understanding of the principles in the financial relations between issuers, investors, professional participants, regulators and self-regulatory organizations; define a set of measures to ensure optimum risk in the financial market and establish a broad and correct idea of the relationship of students the course "Financial Markets" with other professional disciplines.

**Financial Analysis** The purpose of discipline "Financial Analysis" is to develop in students the modern economic thinking and system expertise in the theory and methodology of financial analysis, a clear idea of the content of financial and economic activity in a market economy, the causal relationship between economic phenomena and financial processes, structure information supply management; skills of management decisions to address the financial situation; mastery of skills and financial analysis. The objectives of the discipline that must be solved in the course of the study are: formation of students of modern economic thinking and system expertise in the theory and methodology of financial analysis, a clear understanding of the content of financial and economic activity in a market economy, the causal correlation bandages economic phenomena and processes financial structure with information of management; skills of management decisions to address the financial situation; mastery of skills and financial analysis.

**University education** and social communication purpose of teaching this discipline is to summarize: the vision of students of higher education as a subsystem of the educational area and socio-cultural environment, mastery of knowledge, abilities and skills necessary to understand its potential systemoformuyuchoho; knowledge of basic principles, principles, practices and perspectives of the Bologna process. The objectives of the study subjects are: knowledge and understanding of the students of the place and role of higher education in the structure of the educational system, the mastery of experience analyzing the theoretical foundations of the functioning of modern Higher Education; major trends, factors and forms; creating an understanding of integration processes in education, basic principles, results and prospects of the Bologna process.

## **2. Elective academic disciplines**

### ***2.1. Disciplines offered by University***

Annotations of disciplines "History of Ukrainian Statehood", "Ethnocultural", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language (English, German, French, Spanish)", "Physical Training", "Labour and Life Safety", "Legal Personal Culture" see Section 2.1.

**The technology of crop production.** Scientific bases of crop production. Modern agricultural technologies. Technological maps silskohospodarskyh growing crops. The concept of the programmable growing crops.



**Technology of production of livestock products.** The current state of the livestock industry. Forage. The impact of standardized feeding, breeding, means the animals on their level of performance. Milk, meat, eggs, wool etc.

## ***2.2. Disciplines offered by students***

**Local finance** Objective: to provide and deepen students' knowledge on the nature and role of local finance in the development of economic and social infrastructure of administrative units, the budget process at the regional level. Tasks of the course: to give the required extent theoretical material, which will include modern scientific developments, both domestic and foreign scientists and economists; - To give the correct understanding of the principles in the financial relations between the state, local, economy and population; uncover ways to use these laws in practice financial work; define a set of measures to ensure the use of finance as one of the effective tools of economic policy of the local government.

**International Finance.** The system of international finance, the evolution of the global monetary system, international financial market and its structure, foreign exchange and foreign exchange transactions, bank loans international market, especially the functioning of the European market.

**Investment** Objective discipline - form students about the importance of a comprehensive concept of project analysis for business development prospects, possible alternative approaches and implementing market study projects to meet social needs. The main objectives of the course are: consideration of the theoretical foundations of project analysis, object, purpose and basic concepts and principles of project analysis, project life cycle; study places the concept of cost-benefit analysis of the project, explicit and implicit benefits and costs, opportunity cost concept as a key project analysis; study the impact of changes in the value of money over time, concepts and methodological tools of evaluation time value of money and its use in financial calculations, determine the future and the present value of money in financing arrangements; substantiation standard financial criteria and informal decision-study method of calculation of integrated indicators, comparing projects using different criteria.

**Insurance services** aim of the course "Insurance services" is to get the students basic knowledge in the theory and practice of insurance. The challenge of course is to clarify the need and merits of insurance in order to create an effective system to protect the interests of citizens, businesses and the state, acquire the skills to implement reinsurance and financial activities of the insurer. In the process of teaching turns objective need insurance, revealed his nature, functions, principles and role in a market economy; highlights issues of organization on the lines of the insurance market and state regulation of insurance; The conditions of personal, property and liability insurance, reinsurance positions with national and international experience; examines features and ways to improve the financial activities of insurers

**Customs regulation of foreign economic activity** Aim to provide students knowledge on customs matters, necessary future specialists to manage in the field of foreign trade. Objectives of the discipline "Customs regulation of foreign economic activity" are the students in acquiring knowledge on theoretical principles of foreign relations, the legislation which it controls and the ability to apply their knowledge to solve practical problems, critically reflect and give reasonable suggestions for improvement.

**Analysis Banking** The aim of the course "Analysis of Banking" is mastering knowledge aimed at improving and increasing professional skills in the management of banks in terms of instability and internal environment. Formation of market financial and credit system requires banks to improve business performance and competitiveness of banking instruments and services through the introduction of scientific and technological

progress, effective forms of economic management and banking. In such circumstances a significant role for the analysis of the Bank, the results of which justified the strategy and tactics of its development, refined plans and management decisions are controlled by their performance, identify financial reserves, estimated performance of management, individual departments and the bank as a whole.

**Securities transactions** work program of discipline "Securities Transactions" will help students understand the specifics of the stock market, especially the implementation of equity and investment banking transactions, understand the differences portfolios, to know the nature of accounting and analysis of securities in the portfolio, meaning risks investment banks in the securities market, understand the meaning of the listing of securities in the world and in Ukraine, and to know the function of banks as underwriters, dealers and brokers. Particular attention is paid to methodological principles of activities of securities trading and issue of securities trading.

**Logic Objective:** To provide students basic training in the fields of system knowledge of basic laws and forms of logical thinking, forming conscious attitude to the process of right thinking through scientific concepts and terms to familiarize students with the theory of logical thinking. The task of discipline is shaping students' skills of correct logical thinking for making good decisions in the future professional work, to participate in discussions and business communication, information processing, for logical and correct substantiation arguments and beliefs opponents; familiarizing students and methodological assistance in mastering a certain amount of knowledge about the means of intellectual activity, its shape and laws, understanding and assimilation of features forms and laws of thought; providing logical and methodological level studies while training.

**Regional economy** The objective of the discipline is learning the theory of productive forces and regional economy and regional development of scientific bases of regional economic policy; mastery of knowledge about territorial and sectoral structure of economic complex of Ukraine and its economic regions and so on. The aim of the course is to develop knowledge on the theoretical and practical bases of the territorial organization of the productive forces of Ukraine, the current state and trends of regional economic development.

**National Economy.** The theoretical and organizational framework for regulating the national economy. Forecasting, macroeconomic planning and programming in the regulation of the national economy. Methods of state regulation of the economy.

**Managerial Accounting** The purpose of discipline "Management Accounting" is to obtain knowledge and practical skills in forming credentials of the operational activities of the company and making effective management decisions on the basis of such information. The objective of discipline is to methodological foundations and familiarization with the regulatory framework regarding cost accounting financial and economic activities of enterprises, acquire the ability to draw up costing, to determine the costs that are relevant to specific management solutions make management decisions based on the relationship between costs, volume of activity and profit , build budgets and spending budget analysis. The subject of discipline is operating cost accounting and calculation of production cost of products, analysis of the relationship of costs, volume of activity and profit model management decisions based on analysis of relevant information.

**Audit.** The application of elements of the organization registers of synthetic and analytical accounting. Accounting for funds, payments, inventory, fixed assets, intangible assets, remuneration systems, variants of production costs, the definition of production costs. Functions of the audit: validation of the balance sheet and recording of profit and loss, analysis of accounting, its compliance with the law; respect for the equality of shareholders rights during the distribution of dividends and voting.

**Reporting of the Enterprises.** General reporting requirements. Balance sheet. Income statement. Statement of cash flows. Statement of changes in equity. Errors correction and changes in the financial statements. Overall and consolidated reporting. Financial report of a small business. Tax reporting. Statistical and special reports.

**Economic analysis** The purpose of discipline study course "Economic Analysis" is to develop knowledge about methods of systematic evaluation of agricultural enterprises, identify internal reserves rational use of material, labor and financial resources. The logic and structure of the course "Economic Analysis" will allow students to learn the necessary amount of knowledge that makes it possible to achieve a high level of professional competence and economic future professionals. Task. On the methodological principles of civilizational paradigm of society form the modern economic thinking and outlook of students to ensure their mastery of knowledge and methods of analysis of economic laws and processes.

**Project Analysis** The purpose of discipline is to form a system of knowledge assessment methodology to design solutions; development and study projects to meet social and personal needs with limited resources. The main tasks of project analysis are: learning the basic concepts, concepts, methods and approaches used in the world in the analysis of design decisions; skills using tools of project analysis, mastering procedures of analysis, comparison and justification of the selection of projects, project evaluation on marketing technology, environmental, social and institutional viability, financial and economic attractiveness.

**Economic and financial risks** purpose of discipline is mastering theoretical knowledge of students' practical skills in the mechanism of determining the sources and causes of risk, stages and activities, under which there is a risk, definition of risks that could threaten the efficient financing of the company, and use of skills in the risk management and economic security. Tasks of the course: to master the content, the nature, importance and role of risk management and economic security of business structures in the modern economy; master the basic principles defining risk factors external and internal environment of functioning entities; master the basic methods of risk assessment in business entities; master the basic forms and methods of system design to minimize risks of business entities; master the basic techniques and methods to identify and address the causes of the factors that contribute to the risk of business entities; learn methods of effective risk management in the activity of economic entities; form students the skills and knowledge necessary for decision-making under uncertainty, the implementation of a rational choice of a plurality of possible alternative options, the ability to take risks within reasonable limits.

**Financial derivatives** The purpose of the course "Financial derivatives" is the formation of future professionals specialized knowledge of the organization of credit institutions and principles of functioning of the foreign exchange markets and international lending system as a whole.

Tasks of the course is mastering theoretical knowledge and practical skills execution and settlement of credit and foreign exchange transactions carried out in servicing foreign trade activities of exporters and importers.

**Price and Pricing.** Theories of pricing, pricing methods. Marginal utility of price, methodological atypical pricing in terms of inflation, ensuring equivalence of accounting and prices in AIC.

**Stock Exchange Activities.** Fundamentals of exchange activity. Commodity, stock and currency exchange. Stock exchange transaction, the procedure of agreements conducting and exchange trading mechanism.

**Fundamentals exchange** Discipline "Fundamentals of stock activity" is studying the mechanism of implementation and technology exchange activities of commodity exchanges in the country and in emerging economies. The purpose of the study course -

the formation of future specialist theoretical foundations and practical skills of the exchange activity and effective use of exchange operations in its future activities. Course description: Formation at students knowledge on the organization of exchange activities; acquisition of practical skills: organization of trade on the exchange of goods, securities, currencies; of relationships with brokers; exchange information for use of high-efficiency production and marketing of agricultural products.

**Rationing and wages** Within the course "Rationing and wages," the theoretical, methodological and practical issues related to the regulation and organization of wages in the process of modern enterprises. The main goal of discipline is to form future professionals understanding the conceptual bases of valuation work in modern conditions, the use of modern forms and pay systems in the enterprise. The subject of the study are common patterns and characteristics of regulation and remuneration of the personnel organizations. The primary purpose of teaching is to form a complex theoretical knowledge and skills to develop and implement a rational organization of personnel, rationing and wages that ensure high efficiency of the staff.

**Labor Sociology.** The essence, content, nature and function of labor. Formation of human behavior in the workplace activity. The role of labor and small groups in achieving production goals. Optimization of socio-psychological climate in the team.

**Economics and Organization of Agroservice** aim of the course "Economics and Organization Agroservice" is to master the future specialist knowledge on the efficient maintenance of agricultural enterprises of different ownership and management. At present particularly important development specialists system of economic relationships in the industrial maintenance of agricultural enterprises, regulation of rational use of inputs like. The objective of discipline is to deepen students' knowledge in the field of economic relations between agricultural producers and industrial area of maintenance and material - technical support.

**Economy of Global Agriculture.** The economy of world agriculture and FEA - the current state of global agriculture. The economic system and the overall performance of the world, Ukraine's place in global agriculture. The world market of agricultural products.

**Mathematics for finance** The purpose of higher mathematics is the formation of individual students develop their intelligence and ability to logical and algorithmic thinking. The main tasks of the course is to master the basics of mathematical tools necessary for solving theoretical and practical economic problems; ability to independently discover, learn and apply the scientific literature and other information sources and resources on higher mathematics; working out mathematical skills in research applications, such as the ability to transfer specific economic problems in mathematical language with the following construction of a mathematical model.

**Information Systems and Technologies in finance.** The basics of accounting, composition of accounting tasks, features of their solving using various technologies of economic information processing; acquiring skills to perform typical accounting problems; develop algorithms to solve them using database management systems and application programs.

**Database i DBSM.** Database and database system management. Data models. Database objects: tables forms, queries, reports, macros, modules. Linking tables. Import and export of data.

**Cost management.** The purpose of discipline is to present the necessary theoretical foundations, methodological approaches and practical knowledge of the principles, techniques and methods development and implementation of the overall strategy and direction of production activity of industrial enterprises; to develop and implement modern industrial system, including the development of the production process, decisions concerning the location of production facilities, design enterprise products, the introduction of standards and regulations for works; to plan and control current operation of the

production system. To achieve this goal are made the following tasks: research productions in their relationship that formed under the influence of objective economic laws and subjective factors; scientific substantiation of decisions on the assessment of business plans with an objective assessment of their performance.

**Organization and Planning of Production in Agricultural Enterprises.** The scientific basis for the organization, production planning, utilization of productive capacities in various spheres of agricultural enterprises, organization of industrial and economic relations in the AIC in market conditions.

**Agribusiness Organization.** Entrepreneurship and business in agriculture: the nature, objectives, benefits. Characteristics of businesses. Drawing up of business plans.

## **2.14. FACULTY OF AGRARIAN MANAGEMENT**

**Dean** – PhD in economics, Associate Professor **Anatoliy Ostapchuk**

Voice: (044)527 – 85-73

E-mail: [agromen\\_dean@nubip.edu.ua](mailto:agromen_dean@nubip.edu.ua)

Address: Bldg. 10, room 313,525

The faculty organizes and coordinates the educational process of bachelors in the following specialties:

### **075 Marketing**

Graduating department:

Department of marketing and international trade

Voice: (044)527-89-78

E-mail: [market\\_chair@nubip.edu.ua](mailto:market_chair@nubip.edu.ua)

Department head - Doctor of economic Sciences, Professor Jaroslava Larina

### **073 Management**

Graduating departments:

Department of management named after I.S.Zavadskiy

Voice: (044)527-84-80

E-mail: [manag@nubip.edu.ua](mailto:manag@nubip.edu.ua)

Department head - Doctor of economic Sciences, Professor Vasiliy Goryovyi

Department of business administration and foreign international activity

Voice: (044)527-86-51

E-mail: [worldagro\\_chair@nubip.edu.ua](mailto:worldagro_chair@nubip.edu.ua)

Department head - Doctor of economic Sciences, Professor Valeriy Galushko



**Bachelor  
in specialty «MARKETING»  
field of knowledge "Management and Administration"**

Form of training:	Licensed study amount:
– full-time	60 persons
– extramural	60 persons
Term of training	4 years
Credits	240 ECTS
Language of teaching	Ukrainian
Qualification of graduates	Bachelor in Marketing

**The concept of training**

The purpose of training of specialist in "Marketing" is to provide companies and organizations in the sphere of environmental management and agribusiness with highly skilled workers who would be able to operate information about the market situation and can use it to improve effectiveness of both entities and organs of state regulation and control. Qualifications of Bachelor of Marketing allows alumnus to identify the main directions of the market development quickly, to predict trends and develop adaptation measures for them.

**Practical training**

Future marketing experts having an example of real enterprises studies specific features of agricultural production, which will largely determine conduct of such products on the market. As potential leaders they learn to manage the departments of marketing, acquire knowledge of the practical aspects of the market work and understanding of their impact on the development of both the company and the market in general, to determine the place of professional marketer in the administrative and economic system of the state.

**Proposed Topics for Bachelor theses**

1. Promotion strategy development.
2. Marketing product strategy development.
3. Increasing efficiency of agricultural enterprise on the base of marketing research.
4. Marketing activity organization on enterprise.
5. Commercial activity organization of marketing base.
6. Creation communicative enterprise policy on internal (foreign) market.
7. Logistic management.
8. Distribution strategy justification.
9. Marketing management on enterprise.
10. Organization of marketing research activity on the milk and milk-processing market.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

### **Employment of Graduates**

All graduates are employed in enterprises and organizations of the agricultural sector and public authorities at the following positions: heads of departments of Logistics (Deputy Head of External Cooperation, Deputy Head of Logistics), managers of small enterprises without the apparatus control in commercial service (Deputy of manager of agency: trade, advertising, etc.), economist in pricing, economist in international trade, professional in the sphere of public services and marketing, specialist in the field of marketing, a specialist of department of public relations and media, Head of marketing department, Head of department of public relations and media, manager of a small enterprise without the administrative staff in wholesale and retail trade, manager of public relations, advertising manager.

### Bachelor's Program and Curriculum in Specialty "Marketing"

№	Name of Academic Discipline	Term	Amount	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Psychology	3	90	3
2	Political Science	5	90	3
3	Advanced and applied math: Module 1. High math	1,2	180	6
4	Advanced and applied math: Module 2. Applied math. Block 1.Probability theory and math statistic	3	90	3
5	Advanced and applied math: Module 2. Applied math Block 2. Math programming	5	90	3
6	Information systems and technology	1,2,3	210	7
7	Politieconomy Science	1,2	120	4
8	Macroeconomics	4	120	4
9	Microeconomics	3	120	4
10	History of Economy and Economical Science	1	120	4
11	Econometrics	5	90	3
12	Economy of the Enterprise	4	120	4
13	Management	5	120	4
14	Marketing	4,5	180	6
15	Money and Credit	3	120	4
16	Finance	6	90	3
17	Accounting	5	120	4
18	Labour economics and socio-labour relations	6	120	4
19	International Economics	6	90	3
20	Statistics	4	150	5
21	Sociology	1	90	3
22	Regional economics	6	90	3
23	Logistic	6	120	4
24	Marketing product policy	8	120	4
25	Marketing of industrial enterprise	7	120	4
26	Marketing pricing	7	120	4
27	Service marketing	6	120	4
28	Marketing research	8	120	4
29	Marketing communications	8	120	4
30	Entrance to specialty: social communications	1,2,4	120	4
31	Entrance to specialty: bases	1	90	3
32	System of technologies: Module 1. Technology of crop production	1,2,3	180	6
33	System of technologies: Module 2. Technology of livestock production and processing	2	120	4
34	System of technologies: Module 3. Technology of storage and processing of agricultural products	4	60	2
The total number			4020	134
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukraine and ethnoculture	1	120	4
2	Philosophy	4	120	4
3	Ukrainian language (for professional purpose)	2	120	4
4	Foreign language	1,2,3,4	240	8
5	Physical training	1,2,3,4	120	4
6	Basics of life safety	2	120	4
7	Law culture of personality	4	60	2

<b>Total number by university chosen</b>			<b>900</b>	<b>30</b>
<b>2.2. Disciplines offered by students</b>				
<b>2.2.1. Disciplines of common choice</b>				
1.	Logic	5	90	3
2.	Religious studies.	6	90	3
3.	Foreign Language (professional direction): upper intermediate.	5,6,7	240	8
4.	Second foreign language	5,6,7	240	8
5.	Rhetoric and phonology of communication	7	90	3
6.	Basics of scientific research	5	90	3
7.	Basics of system theory & system analysis	5	90	3
8.	Organization of entrepreneurial activities	7	90	3
9.	Economics of enterprise (on the field of economic activity)	7	90	3
10.	Investment	7	90	3
11.	Information system in marketing	7	90	3
12.	Analysis of economic and commercial activities.	7	90	3
13.	Standardization and management of production quality	8	90	3
14.	Economics of world agriculture	8	90	3
15.	National economics	8	90	3
16.	Biosocial economics	8	90	3
17.	Environmental economics	8	90	3
18.	Organization and planning of production in agribusiness	8	90	3
19.	Basics of exchange activities	8	90	3
20.	Basics of agrarian consulting	8	90	3
21.	Risk-management	8	90	3
22.	Operational management	8	90	3
23.	International economic integration. Eurointegration	8	90	3
24.	Motivational management	8	90	3
25.	Consumer behavior	8	90	3
26.	Tax system	8	90	3
27.	Basics of cooperation	8	90	3
28.	Controlling	8	90	3
29.	Banking system	8	90	3
30.	Financial market	8	90	3
<b>The total number</b>			<b>1260</b>	<b>38</b>
<b>2.2.2. Specialization "Commercial and distribution activity "</b>				
1	Marketing distribution policy	7	90	3
2	Commodity market infrastructure	6	90	3
3	Marketing analyze	7	90	3
4	International marketing	8	90	3
5	Public relations	7	90	3
<b>Total</b>			<b>450</b>	<b>15</b>
<b>2.2.3. Specialization "Marketing of goods and service"</b>				
1	Commodity studding	7	90	3
2	Agricultural marketing	6	90	3
3	Marketing pricing policy	7	90	3
4	Marketing analyze	7	90	3
5	International marketing	8	90	3
<b>Total</b>			<b>450</b>	<b>15</b>
<b>Total by student's choice</b>			<b>1800</b>	<b>53</b>
<b>Total in selective constituent</b>			<b>2490</b>	<b>83</b>

3. OTHER TYPES OF TRAINING				
1	Military training		240	8
2	Studying practice		330	11
3	Industry practice		150	5
Bachelors qualification thesis (diploma or project)			180	6
State attestation			30	1
<b>Total for specialty without military training)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines of the curriculum

### 1. Standard academic disciplines

**Psychology.** The purpose of discipline is to explore the general principles and mechanisms of formation and development of cognitive mental processes, properties, states and communities. Task of the discipline is to form a system of theoretical and methodological knowledge of the problems of psychological science and practice, knowledge of the structural elements of the mind - mental cognitive processes, properties, classes and structures at play and interpretation for practical application and implementation in the professional activity of future specialists.

**Political Science.** The purpose of teaching is to form a holistic, logical, consistent system of knowledge about politics as a social occurrence and a social phenomenon. Tasks of the course are the following: to learn the basic concepts and categories of political science at reproduction and interpretation level for practical application and implementation in the future professional activity, to understand the nature of political phenomena and processes.

**Higher and applied mathematics.** The purpose of study of discipline is forming for the students of base mathematical knowledge for the decision of tasks in professional activity, abilities of analytical thought and mathematical formulation of economic tasks which arise up in the process of management. The tasks that need to be addressed in the study subjects, students are gaining knowledge of the main sections of higher mathematics, proving basic theorems forming primary skills: perform operations on vectors, matrices, computing determinants, solving systems of linear equations, the study of shapes and properties lines and planes, curves and surfaces of the second order, of the limits of step-exponential functions.

**Probability Theory and Mathematical Statistics.** The main purpose of teaching is to form future professionals with basic knowledge the basis of a probabilistic-statistical machine to solve theoretical and practical economic problems. The main tasks that needs to be addressed in the process of teaching is to provide students with knowledge of basic definitions, theorems, rules, theorem proving, and the formation of skills: to fulfill qualitative and quantitative mathematical analysis of random events, random variables and systems of values, conduct mathematical treatment of statistical data provide statistical estimation of population parameters.

**Economico-mathematical methods and models.** This discipline teaches students to use methods of economic-mathematical models in their professional careers. The main directions of studding of the discipline are the following: mathematical model in the system of material and ideal models, the research of economic processes through mathematic-economic models, the main methods of modeling of economic processes, mathematical formalization of conditions with changeable technical and economic factors, economic-mathematical analysis of optimal solutions.

**Information systems and technology.** The purpose of teaching of discipline is forming for the future specialists of modern level of informative and computer culture, acquisition of practical skills of work on a modern computer technique and use of modern information technologies for the decision of various tasks in practical activity on specialty.

**Politeconomy Science.** The purpose of discipline is achievement of fundamental economic knowledge by future prospective specialists, formation of logic of economic thought and economic culture, teaching them basic methods of cognition and analysis of economic processes, and the ability to make reasonable decisions about economic issues related with their future practical activities.

**Macroeconomics.** The purpose of discipline is to train professionals to perform their professional functions, mastering of economic knowledge, which are based on the current macro-analysis, acquisition of skills of aggregate indicators of economic and social development of the national economy research through the use of universal instruments and macroeconomic modeling. As a result of the study of the course students should know: patterns and general trends in development of economic processes at the macro level, allocate part macroeconomic aggregates and the links between them; methodological principles of calculation of macroeconomic indicators, forecasting of macroeconomic development and emergence of cycle and indicators of economic cycle;

**Microeconomics.** It is one of the components of modern economic theory – the fundamental science about household which explores human behavior and explains why and how they make certain economic decisions. Microeconomics studies the behavior of individual economic agents in different market structures. The object of study is the behavior of micro-economical entities, ie the process of developing, adopting and implementing decisions regarding the selection and use of scarce resources in order to obtain the greatest possible benefit.

**History of Economics and Economical Sciences.** This is a training course, during which students acquire historical and economic knowledge. Purpose of the discipline is: mastering theoretical knowledge of economic history at the micro, meso, macro and global levels, the formation of knowledge in comparative historico- economic analysis of models of the world economy development, exploring domestic and foreign economic experiences of past generations in different countries and different era. The subject of attention is the study of the process of formation, development and functioning of a market economy to understand the current practices of socio-economic transformation in Ukraine.

**Econometrics.** Purpose of the discipline is to teach students how to quantify the relationship of economic indicators for various sets of economic information going into the last test of the appropriateness of certain prerequisites and to determine methods for quantitative measurement of links that are useful in each case according to the characteristics of economic information.

**Economics of the enterprise.** It is the science of production efficiency, ways and means to achieve the best results at the lowest cost by enterprise. The subject of the study of economics of enterprise are methods and ways of combining rational and efficient use of all elements of the manufacturing process at the enterprise level. Target of the economics of enterprise: study measures to improve the efficiency of enterprises and the use of the means of production, and labor intensive study ways and environmentally sound development of enterprises, determination of the effectiveness of introduction of new machines and their systems, individual measures.

**Management.** The main purpose of teaching is to develop in future leaders a modern management thinking and system of special knowledge in branch of management, formation of understanding of the conceptual foundations of organizations' system management, acquirement of skills of analysing internal and external environment, making appropriate management decisions.



**Marketing.** The purpose of the discipline is the formation in students - future marketers a scientific outlook and special knowledge in the theory, methodology of marketing, development abilities and skills to perform management functions in the enterprise based on marketing for satisfaction of customer's needs and ensure the effective activities of the enterprise.

**Money and Credit.** The aim of the course is to develop in the future specialists in marketing a modern economic thought and knowledge system concerning general normflities of development of modern financial and monetary relations of society.

**Finance.** The purpose of discipline is to develop in students of modern economic thinking and system of specific knowledge about basic concepts regarding the economic and financial activity, contents of its specific

**Accounting.** The main purpose of teaching future marketings is to build theoretical knowledge and acquirement of practical skills in organizing and prosecuting of accounting and leading the auditing of financial statements, as well as using of their results, as the informational base of effective decision-making. The main task of studing the discipline is detailed overall economic and accounting and auditing training of specialists and acquiring of principles, tools, methods and techniques of accounting of commercial enterprises, as well as the audit of the financial statements.

**Labour economics and socio-labour relations.** Studing the discipline involves consideration of the following issues: socio-economic role of labor in the development of society, the development and usage of human resources, theoretical and practical basis for the organization, regulation and remuneration. Considerable attention is paid to the study of issues of functioning the system of socio-labour relations, employment problems and social security of population, unemployment, activities of the International Labour Organisation and International Labour Migration, etc.

**International economics.** The purpose of teaching is to form a system of special knowledge of the problems and prospects of development of the international economic relations for the basic and special education and practice in the specialty. The result of studing the discipline is following: developing a holistic understanding of the processes that characterize the international level of interaction between national economies, mastering new approaches concerning the estimation of the evolutionary nature of the international economy development, mastering culture of modern economic thought.

**Statistics.** Teaching of the discipline has an aim of the formation of future professionals of theoretical knowledge and practical skills in statistical estimation of economic phenomena and processes of social life, mastering the methods of the techniques of statistical analysis. The main tasks that need to be resolved in the process of teaching include: gathering, checking and evaluation of statistical information, development of statistical forms, bringing together and grouping of materials of statistical monitoring, identifying relationships between different phenomena and processes, establishing its structure, technics of calculation of generalized statistical indicators and their economic interpretation.

**Sociology.** The purpose of the discipline is to familiarize students with the history of sociological thought and problematic field of Ukrainian and world sociology. The following learning assignments are subjected to achieve the purpose: to provide students with a holistic view of society, to form the skills for operating the theoretical and factual material, to help to understand the processes occurring in contemporary society in its various manifestations.

**Regional Economics.** The main objective of the course is the formation of students' modern thinking and special knowledge in branch of management at the regional level, the acquisition of skills and the formation of competencies required to perform the functions and realizations of powers of state and local governments. During the process of studing of the course the student has to learn the appropriate set of knowledge and skills

that should contribute to the overall training of future specialists and ensure the proper execution of their assigned tasks in regional management.

**Logistic.** The primary purpose of teaching of discipline is forming for the future specialists of system knowledge and understanding of conceptual bases of logistic, theory and practice of development of this direction and acquisition of skills of independent work, in relation to mastering of educational material in relation to the modern methods of management financial and other streams in modern terms.

**Marketing product policy.** The purpose of discipline is to learn the principles of comprehensive range of optimization and further development. Solving the above problems of marketing goods policy for future specialists may make the implementation of these tasks discipline involving the study: the quality of goods and services (works), the main market of the goods and services competitive products, the main areas of commercial policy formation.

**Marketing of industrial enterprises.** The purpose of discipline is: the formation of theoretical and practical knowledge about industrial marketing, modern concepts of development, methodological and organizational framework for use. Objectives of the course: the study of the theory of industrial marketing, market research methodology, design and planning of marketing strategies and sales industry, mastering modern management marketing communication activities in the areas of procurement, sales distribution.

**Marketing pricing.** The purpose of the course is to learn the complex knowledge how to develop and implement marketing pricing, pricing on new and traditional products and services. The task of discipline: the study of marketing processes of pricing and skills of analysis, assimilation of pricing principles and marketing management, familiarization with the practical aspects of pricing in the company.

**Services Marketing.** The purpose of discipline "services marketing " is to deepen students' knowledge on the specifics of marketing services as a specific commodity and conditions, mechanisms and tools for use in the activities of organizations (companies). Objectives of the course: understanding the significance of marketing in the service sector, its features, market research services, its structure in the world and national levels, regulation and regulatory support, marketing tools absorption features in the organization, and businesses in the service sector, the ability to use this knowledge in practice activity. The object of the course is the theory and practice of marketing in services

**Marketing Research.** The course "Marketing Research" forming students' understanding of marketing research as a science, an introduction to the history of the emergence of marketing and market research, is in the form of systematic data on the direction, organization and most important methods of marketing research in small and medium business. Important objectives of the course "Marketing research" are: developing knowledge about the nature of marketing research, study the importance of marketing research in a market economy, the definition of goals and objectives of marketing research.

**Marketing Communications.** The purpose of discipline: mastering the knowledge of effective goods / services to take effective industrial, institutional and scientific solutions to date. The target of courses: learning the basic categories of marketing communications, exploring techniques budgeting advertising campaigns algorithms calculate the efficiency of advertising appeal to the target audience and practical skills they use in promotion, finding stocks improving the promotion of goods.

**Introductory to specialty: Fundamentals** The purpose of discipline is to familiarize students with the features of future profession, its content and objectives of management, the role of managers at different levels in the management of modern enterprises, especially the training of specialists in management.

**Introductory to specialty: Social Communication.** The main purpose of the discipline - the most help students in acquiring the necessary theoretical knowledge and practical skills in the field of social education, transformation of social knowledge, social and self-development to address contemporary social issues. As a result of studying the discipline, students will learn the basic concepts, principles, main categories, trends and patterns of social education for social learning and thus build constructive social dialogue.

**System of technologies. The technology of crop production.** The main purpose of discipline is to provide knowledge to create optimal process (agro-ecological) conditions of the required number of high-quality crop production based on intensive photosynthesis in crops field crops while maintaining or improving soil fertility. The key task of it is: getting practical skills in production high-quality, environmentally friendly products with minimal energy and labor costs while maximizing its output per unit time per unit area that requires large-scale introduction of high-grade, intensive, energy-saving and environmentally appropriate technologies.

**System of technologies. The technology of livestock production.** Scientific approaches and practical issues of discipline that anticipation for the study have immediate and direct relevance to future research or practice students. This applies both on scientific principles of economics and livestock industries, farms activities, planning and financing their technology of major livestock products, as well as a deep understanding and knowledge of them essentially biological properties of a living organism, patterns of development, the relationship of organism and environment and historical development of the organism. Also state animal that has emerged in Ukraine and introduction of new technologies livestock production requires the ability to assess the effectiveness of a particular technology based initiatives.

**System of technologies. The technology of storage and processing of agricultural production** The purpose of discipline is giving future marketing specialists professional knowledge of the main characteristics of the product, from a stage production and finishing of pre-sale preparation. The discipline studies technological regulations that determine the quality of products and by its price parameters. Students acquire practical skills with the products, allowing their careers to forecast supply and demand for it.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines are «Ukrainian (after professional direction)», «History of Ukraine», «History of the Ukrainian culture», «Foreign language», «Philosophy», «Physical education», see a section 2.1.

### **2.2 Disciplines chosen by student**

#### **2.2.1. Disciplines of common choice**

**Logic.** Discipline "Logic" and contributes to the improvement of crops logical thinking, rational and analytical approach to the analysis of various processes and phenomena. During the study, students gain knowledge of the basic laws of formal logic, forms of reasoning, research methods of modern logic and logical foundations of the theory of argumentation skill and produce clear, consistent and consistently articulate their thoughts clearly and effectively draw conclusions.

**Religious studies.** Discipline examined the phenomenon of religion, its origin, the basic religious concepts, history and present situation of religions, the main provisions of dogma and cult of the most influential religious.

**Foreign Language (professional direction): upper intermediate.** Discipline is deepens the students' communicative competence, especially use of skills, abilities and knowledge of a foreign language in the course of business relations with other countries representatives on various professional issues related to management activities, business and the labor market in agriculture, preparation for participation in international conferences, projects and discussions, and presentations, a written exchange of business information (formal and informal letters, resumes the different types of research articles and reports), thus contributing, comprehensive development of the individual student and their socialization in a foreign language society.

**Second foreign language.** Studying the discipline deepens the students' communicative competence in another foreign language, such as the use of skills, abilities and knowledge of a foreign language in the process of business communication with representatives of other countries on various professional issues related to professional activities, business and the labor market in agriculture economy, preparation for participation in international conferences, projects and discussions.

**Rhetoric and psychology of communication.** During the study course, students learn the basics of speech, functioning of business language under management profession, basic psychological and organizational peculiarities of speech to its implementation and completion, the principles of establishing effective communication with staff and partners and so on.

**Basics of scientific research.** The main purpose of teaching is to form future professionals with basic knowledge the basis of a probabilistic-statistical machine to solve theoretical and practical economic problems. The main tasks that needs to be addressed in the process of teaching is to provide students with knowledge of basic definitions, theorems, rules, theorem proving, and the formation of skills: to fulfill qualitative and quantitative mathematical analysis of random events, random variables and systems of values, conduct mathematical treatment of statistical data provide statistical estimation of population parameters.

**Basics of systems theory and system analysis.** The subject of discipline are the basic concepts of systems theory, methodology, systems analysis and decision making theory, methods in choosing the best option to overcome the problems that arose. A student on the basis of the discipline should know the basic principles of system approach to overcoming the challenges that have arisen; basic principles of construction of systems analysis procedures to overcome problems that arose; Principles of expertise in constructing a mathematical model of the problem.

**Organization of entrepreneurial activities.** The aim of the course - to give future professionals and leaders of the agricultural sector agricultural research knowledge with efficient organization of entrepreneurial activities in a mixed economy and the development of market relations. Currently particularly important knowledge of organizational and economic, financial, legal and social foundations of new businesses, farming, farm economic relations in enterprises, which teaches this discipline.

**Economics of enterprise (on the field of economic activity)** Discipline examines key issues and patterns of development of agrarian sector of economy of Ukraine in a reform of land ownership and property. Describes the economic mechanism of the law of value in all sectors of agriculture. The measures improve the efficiency of agricultural production based on his cooperation, integration and intensification.

**Investment.** The purpose of discipline is to develop in students the modern economic thinking and system of special knowledge in the field of investment activity of enterprises, relevant competencies based on mastering basic theoretical positions and mastering practical skills needed to effectively carry out this activity in the company.

**Informational systems in marketing.** The goal of teaching of the discipline is to develop in future professionals a current level of informational and computer culture, the acquirement of practical skills of work on modern computer equipment and the usage of modern information technologies to solve various problems in the practice activity of the specialty.

**Analysis of economic and commercial activities.** Discipline is aimed at mastering the theoretical and practical knowledge of arranging and conducting business analysis of agricultural enterprises. In the study subjects upcoming expert learns a technique of analysis at different levels of management to a comprehensive evaluation of the results of management, study and definition of internal resources management of material, financial and human resources for science-based decision-making.

**Standardization and management of production quality.** In studying the discipline, students become acquainted with the basic principles of standardization of products, processes and services and basic concepts used for the certification of safety and quality in Ukraine and in the world, primarily in the European Union. The result of course is the ability to correctly assess the quality of specialist food and used in its production of raw materials and to determine the feasibility of acquiring it, and intended use.

**Economics of world agriculture.** The main goal of mastery of the course is a deep study of patterns of world agricultural equip future professionals systematized and generalized knowledge about agricultural economics of individual countries and regions in the context of global trends in agricultural production and international relations.

**National economics.** The purpose of the discipline is building a holistic systematic view of the national economic system, structure of the organizational, methodological and regulatory activities of state and commercial structures in the branch of economics, the patterns and features of the functioning of the national economy compared to economies of other countries.

**Biosocial economy.** Discipline is oriented on formation in students views, based on deep knowledge and understanding of present trends in science and technologies in biosocial economy; obtaining detailed and systematic understanding of new conceptual approaches and methods for bioeconomy processes analysis and product development in agriculture and environment; mastering of analytical and methodological skills; formation of sustainable development strategies with further application in public administration and local government in the field of biodiversity and sustainable development, as well as enterprises in the private sector (consulting, agricultural and biotechnology companies, large industrial groups and so on. e.) and in further scientific research.

**Environmental Economics.** Environmental Economics - interdisciplinary science study which aims to obtain and use new knowledge in the field of regulation of the relationship between socio-economic development of society and the environment through their organic unity and cooperation, as well as the formation of an economically efficient mechanism for maintaining ecological balance and sustainable use of natural resources. Need the discipline due to the fact that any measures in the agricultural sector should not only environmentally friendly but also cost effective and appropriate.

**Organization and planning of production in agribusiness.** This subject provides knowledge about the laws that govern the one hand, the economic property relations between entrepreneurs and employees, on the other - the actions of entrepreneurs in the process of selecting resources for production, exchange, distribution and consumption of goods and services.



**Basics of exchange activities.** This subject gives students an idea of the basic tools of the trade used in the global stock market. Future marketing professionals for example stock market learning process of birth for the goods and explore the factors that affect it.

**Basics of agrarian consulting.** The purpose of discipline is to develop initial knowledge from the experts about the basics of extension services, training methods and counseling agricultural producers, organizational structure and working methods of consulting and advisory services in the agricultural sector of Ukraine. As a result, the future of the discipline specialist learns about the nature of the place and role of extension services in the agricultural sector in different countries, the most effective methods of disseminating information, psychological and ethical aspects of information and consultancy activities, modern information technology, especially the economic analysis and advice from the profile of the specialist.

**Risk-Management.** The purpose of teaching consists in providing knowledge about the methods of risk assessment parameters that characterize the quantitative relationships between economic variables. Challenges of teaching is learning predictive risk models, acquiring skills to use them in practice economic management. As a result, the study of the course students should know: the nature, subject and object of discipline, modeling of economic risk system of economic forecasting risks, the social risk prediction methods of technical analysis.

**Operational Management.** The main purpose of teaching is to develop students' competence in relation to the basic principles, the basic categories of modern concepts, theoretical principles and practical methods of management of enterprises main business and skills development of operational strategy, creation and use of sectoral operational subsystems as the basis for achieving the organization's mission.

**International economic integration. European integration.** The aim of teaching the discipline - to provide students with modern knowledge of international integration processes and European integration that will allow to form new model of training specialists in management, who will be able to make correct decisions in conditions of European integration of Ukraine. Students will examine: the nature, preconditions and goals of international economic integration; consequences and economic effects of the integration process; regional integration stages and its description; features of forming integration groups in different parts of the world; evolution and characteristics of creating the European Union and mechanism of its regulation; causes and consequences of establishment and reforming the Common Agricultural Policy of the EU etc.

**Motivational management.** The purpose of the discipline - to extend and deepen knowledge of basic theory and practice of management motivation, gain practical skills and motivation skills of different categories of management stuff. The subject of discipline "motivational management" is to determine motivation place in the socio-psychological structure of personality, motivational content of the process, the use of motivational theories in management practices; mastering different methods of motivation of different categories of workers, motivated management teams and groups.

**Consumer Behavior.** The purpose of discipline is the acquisition of knowledge and practical skills regarding working with customers, managing their behavior, shaping and maintaining consumer demand for their products and services, identifying their customers and influence on the acceptance of their purchase decisions. Objective: To study the functional structure and data base management behavior of consumers. Subject: behavior of potential and actual customers, the factors that affect consumer behavior, models of consumer behavior.

**Tax system.** The purpose of the teaching of this discipline - the study of aggregate financial relations arising in the process of distribution and redistribution of gross domestic product from businesses and individuals to centralized funds, which is the theoretical basis



of the discipline. In addition, considerable attention is paid to mastering practical principles of the tax system in Ukraine. This is the future professional to freely navigate in the tax area, objectively assess the changes occurring in tax policy, to understand the nature and trends in tax administration, develop and resolve issues of theory and practice of building the state tax system.

**Basics of cooperation.** The goal of study course is to explain the basics of formation cooperative identity to a student, understanding of how the cooperative works and its place in modern society. Study the origins of cooperation and influence cooperative identity in the task manager. Grounded cooperatives values and its principles. Analyzes the advantages of cooperatives over other forms of management based on consideration of current trends in global and local socio-economic systems.

**Controlling.** Discipline involves establishing the purpose of the enterprise, the present information collection and processing for decision-making, control functions deviations from planned numbers, and, most importantly, preparing recommendations for decision-making. Controlling aimed at improving efficiency of management and economic governance at the micro level.

**Banking system.** The purpose of discipline is mastering basic principles of banking operations at the level that after training they can better navigate 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 in students about the deepening the financial market operations, the mechanism of its characteristics and development of global stock market, the policy of portfolio investment. Tasks of the course - to submit the required extent theoretical material, which includes research and development of domestic and foreign scientists; give structural understanding of the principles in the financial relations between issuers, investors, professional participants, regulators and self-regulatory organizations; define a set of measures to ensure optimum risk in the financial market.

### ***2.2.2. Specialization “Commercial and distribution activity ”***

**Marketing distribution policy.** The aim of the discipline is to teach students the basics of effective distribution of goods and services. While studying the discipline the issues of theoretical and methodological foundations of marketing distribution policy, including the organization and administration commodity circulation, wholesale and retail trade in distribution channels, intermediaries' work organization; conceptual basis of understanding the marketing policy of distribution and marketing logistics, public procurement and public order, choice of the marketing policy and distribution channels are examined.

**Commodity market infrastructure.** The purpose of the following courses: to master the theory of commodity market infrastructure as an essential part of the market economy, the practical ability to control its activities to promote, storage and sale of goods and services to meet the needs of consumers, the ability to find and implement solutions for intensification and efficiency in this area. Objectives of the course: to know the nature of the commodity market infrastructure and its role in a market economy, the types and conditions of an effective infrastructure of individual links of the commodity market.

**Marketing analyze.** The purpose of discipline is to development of students' basic mathematical knowledge to solve problems in professional activities, analytical thinking skills and mathematical formulation of economic problems arising from the management. The tasks that need to be resolved during the process of studding the discipline are: acquation of knowledge of the main sections of higher mathematics, substantiation of basic theorems, formation of primary skills: performance of actions on vectors, matrices, calculations of determinants, solving systems of linear equations, studding of shapes and

properties lines and planes, curves and surfaces of the second order, finding of the limits of step-exponential functions.

**International Marketing.** The purpose of discipline - the formation of students' theoretical and practical knowledge in the sphere of international marketing activities needed to achieve business goals in international business. The object of discipline is a set of principles of integrated management system international marketing activities in the company and implementation of the basic functions of marketing in international business.

**Public relations.** The aim of the course "Public relations" is mastering the basics of PR. The purpose of teaching - the formation of students' theoretical knowledge and practical skills in establishing two-way communication to identify common ideas or common interests and mutual understanding based on truth, knowledge and full awareness.

### ***2.2.3. Specialization "Marketing of goods and service"***

**Commodity studying.** The purpose of discipline - to give the future specialists theoretical background and practical skills of the fundamental characteristics of the product using knowledge gained in solving the major problems of marketing activities. Problems Subjects: to give the theoretical knowledge of fundamental characteristics that make the use-value of goods; train future professionals to the principles and methods of goods movement; systemating the explore of the multitude of products through the rational application of classification and coding.

**Agricultural Marketing.** The purpose of discipline is to provide students the theoretical knowledge and practical skills in management, planning and organization of marketing activities of companies in the market of agricultural products. The task is to discipline students acquiring skills in market research of agricultural products (APC), predicting conditions of trade, inventory management and quality of agricultural products, pricing, promotion of goods on the domestic and foreign markets of food, distribution and marketing of domestic products.

**Marketing price policy.** The purpose of discipline is to develop in students the modern economic thinking about the pricing policy of marketing companies; use marketing capabilities and different pricing strategies in pricing method for its successful implementation in terms of domestic market. The objectives of the course include the formation of knowledge about the possibilities of using marketing pricing policies to ensure the sustainability of its operations in the domestic market.

**Marketing analyze.** The purpose of discipline is to development of students' basic mathematical knowledge to solve problems in professional activities, analytical thinking skills and mathematical formulation of economic problems arising from the management. The tasks that need to be resolved during the process of studding the discipline are: equation of knowledge of the main sections of higher mathematics, substantiation of basic theorems, formation of primary skills: performance of actions on vectors, matrices, calculations of determinants, solving systems of linear equations, studding of shapes and properties lines and planes, curves and surfaces of the second order, finding of the limits of step-exponential functions.

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**Bachelor  
in specialty "MANAGEMENT"  
field of knowledge "Management and Administration"**

Form of training:	Licensed study amount:
- full-time	150 persons
- extramural	60 persons
Term of training	4 years
Credits	240 ECTS
Language of instruction	English, Ukrainian
Qualification of graduates	Bachelor in management, manager administrator

**The concept of training**

The purpose of training as "Management" is to provide agribusiness companies and organizations highly skilled workers primary level management departments, operating systems and processes. Qualifications Bachelor of Management and Manager administrator can graduate quickly adapt to domestic economic relations of enterprises and organizations to quickly develop and implement the elements of the management system, establish an effective incentive system.

**Practical training**

Future management specialists of specific companies gain working knowledge of modern management methods, knowledge of the technological issues of enterprise's ability to govern themselves, to build a clear personal goals, ability to solve problems, the ability to innovate, and the ability to influence others, knowledge of modern management approaches, the ability to control, the ability to train and develop subordinates; manage enterprise knowledge of the practical aspects of decision-making.

**Proposed Topics for Bachelor theses**

1. System of human resource potential management improvement.
2. Improvement of system of working achievements and personal skills rates of managers.
3. Management of business activity of enterprises and ways of their improvement.
4. Improvment of organization and motivation of stuff on entrprise.
5. Improvment of management system in livestock business.
6. Development communication system in the structure of management of enterprise.
7. Increasing efficiency of making management decision and their implementation.
8. Creating competitive strategy of enterprise.
9. Creating system of quality management in agrarian enterprises.
10. Human resource management in cooperatives.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

### **Employment of Graduates**

All graduates are employed in companies and organizations in the agricultural sector and public authorities at the following positions: managers of production units in commercial service, working apparatus of central government, workers, staff of local authorities, heads of other departments in other areas (Inspector, Deputy Chief department), managers of small enterprises without the apparatus (Vice Chairman), managers of business and management (personnel manager, manager of administration), managers in other sectors of economic activity, economists (economist contract work, Economic Advisory) assistant managers.

### Bachelor's Program and Curriculum in Specialty «Management»

№	Name of Academic Discipline	Term	Amount	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1.	Psychology	3	90	3
2.	Sociology	1	90	3
3.	Political science	5	90	3
4.	System of technologies: technology of crop production	1,2,3	210	7
5.	System of technologies: technology of livestock production and processing	2	120	4
6.	System of technologies: technology of storage and processing of agricultural products	4	60	2
7.	Advanced and applied math: High math	1,2	180	6
8.	Advanced and applied math: Applied math. Block 1.Probability theory and math statistic	3	90	3
9.	Advanced and applied math: Applied math Block 2. Math programming	5	90	3
10.	Statistics	4	150	5
11.	Information systems and technology	1,2,3	180	6
12.	Economic theory: bases of economics theory	1	120	4
13.	Economic theory: macroeconomics	2	120	4
14.	Economic theory: microeconomics	3	120	4
15.	State and regional administration	6	90	3
16.	Management and administration: theory of organization	4	90	3
17.	Management and administration: management	5	120	4
18.	Management and administration: operational management	8	120	4
19.	Management and administration: human resource management	7	120	4
20.	Management and administration: self-management	7	90	3
21.	Management and administration: management of innovations	8	120	4
22.	Management and administration: strategic management	8	120	4
23.	Management and administration: administrative management	6	90	3
24.	Law: administrative law	5	90	3
25.	Law: employment law	6	90	3
26.	Law: commercial law	7	90	3
27.	Finance, money and credit	3	120	4
28.	Economy of the enterprise	4	120	4
29.	Finance of enterprise	6	90	3
30.	Accounting	5	120	4
31.	Marketing	5	120	4
32.	Logistic	6	120	4
33.	Foreign economic activity of enterprise	6	120	4
34.	International economic relations	4	120	4
35.	Introductive to specialty: social communications	1,2,3	90	3
36.	Introductive to specialty: fundamentals	1	60	2
The total number			4020	134
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukraine and ethnoculture	1	120	4
2	Philosophy	4	120	4
3	Ukrainian language (for professional purpose)	2	120	4
4	Foreign language	1,2,3,4	240	8
5	Physical training	1,2,3,4	120	4

6	Basics of life safety	2	120	4
7	Law culture of personality	4	60	2
<b>The total number</b>			<b>900</b>	<b>30</b>
<b>2.2. Disciplines offered by students</b>				
<b>2.2.1. Disciplines of common choice</b>				
1.	Logic	5	60	2
2.	Religious studies	6	90	3
3.	Foreign language (professional direction): upper intermediate.	6,7,8	240	8
4.	Second foreign language	6,7,8	240	8
5.	Rhetoric and psychology of communication	7	90	3
6.	Econometrics	6	90	3
7.	Basics of scientific research	5	90	3
8.	Theory of economic analyze	6	90	3
9.	Basics of theory of system and system analyze	5	90	3
10.	Basics of cooperation	7	90	3
11.	Information system in management	7	90	3
12.	Economics of world agriculture	8	90	3
13.	National economics	8	90	3
14.	Biosocial economics	8	90	3
15.	Environmental economics	8	90	3
16.	Organization and planning of production in agribusiness	7	90	3
17.	Organization of entrepreneurial activities	7	90	3
18.	Bases of exchange activities	8	90	3
19.	Bases of agrarian consulting	8	90	3
20.	Risk-management	8	90	3
21.	International economic integration. Eurointegration	8	90	3
22.	Economy of enterprise (on the field of economic activity)	7	90	3
23.	Sociology of work	7	90	3
24.	Standardization and management of production quality	7	90	3
25.	Marketing research	8	90	3
26.	Tax System	7	90	3
27.	Banking system	7	90	3
28.	Investment	8	90	3
29.	Financial market	8	90	3
<b>Total number</b>			<b>1140</b>	<b>35</b>
<b>2.2.2. Specialization "Management organization and business administration"</b>				
1.	Economics of labor and social-business relations	6	90	3
2.	Management of enterprise (on the field of economical activity)	6	90	3
3.	Controlling	7	90	3
4.	Marketing activity of enterprise (on the field of economical activity)	7	90	3
5.	Management of motivation	7	90	3
6.	Analysis of economic and commercial activity	8	90	3
<b>Total number</b>			<b>540</b>	<b>18</b>
<b>2.2.3. Specialization "Management of foreign activity"</b>				
1	Marketing in foreign international activity	6	90	3
2	International trade	6	90	3
3	Foreign commercial activity	7	90	3
4	Analysis of economic and foreign commercial activity	8	90	3
5	Customs regulations. Customs business	7	90	3
6	Operations management of exports and imports	7	90	3
<b>Total number</b>			<b>540</b>	<b>18</b>
<b>Total by student's choice</b>			<b>1590</b>	<b>53</b>
<b>Total in selective constituent</b>			<b>2490</b>	<b>83</b>



3. OTHER TYPES OF STUDY				
1	Military training	5,6,7,8	240	8
2	Studying practice	2,4,8	330	11
3	Industry practice	6	150	5
Bachelors qualification thesis (diploma or project)			180	6
State attestation			30	1
<b>Total for field of knowledge (without military training)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Psychology.** The purpose of discipline is to explore the general principles and mechanisms of formation and development of cognitive mental processes, properties, states and communities. Task of the discipline is to form a system of theoretical and methodological knowledge of the problems of psychological science and practice, knowledge of the structural elements of the mind - mental cognitive processes, properties, classes and structures at play and interpretation for practical application and implementation in the professional activity of future specialists.

**Sociology.** The purpose of discipline is an acquaintance of students with history of sociological idea and problem field of Ukrainian and world sociology. Such educational tasks submit gaining end: to give students the integral picture of society; to form skills of operation theoretical and actual material; to help in understanding of processes which take place in modern society in his different displays.

**Political science.** The purpose of teaching is to form a holistic, logical, consistent system of knowledge about politics as a social occurrence and a social phenomenon. Tasks of the course are the following: to learn the basic concepts and categories of political science at reproduction and interpretation level for practical application and implementation in the future professional activity, to understand the nature of political phenomena and processes.

**System of technologies: technology of crop production.** The main purpose of discipline is to provide knowledge to create optimal process (agro-ecological) conditions of the required number of high-quality crop production based on intensive photosynthesis in crops field crops while maintaining or improving soil fertility. The key task of it is: getting practical skills in production high-quality, environmentally friendly products with minimal energy and labor costs while maximizing its output per unit time per unit area that requires large-scale introduction of high-grade, intensive, energy-saving and environmentally appropriate technologies.

**System of technologies: technology of livestock production and processing.** Scientific approaches and practical issues of discipline that anticipation for the study have immediate and direct relevance to future research or practice students. This applies both on scientific principles of economics and livestock industries, farms activities, planning and financing their technology of major livestock products, as well as a deep understanding and knowledge of them essentially biological properties of a living organism, patterns of development, the relationship of organism and environment and historical development of the organism. Also state animal that has emerged in Ukraine and introduction of new technologies livestock production requires the ability to assess the effectiveness of a particular technology based initiatives.

**System of technologies: technology of storage and processing of agricultural products** The purpose of discipline is giving future marketing specialists professional knowledge of the main characteristics of the product, from a stage production and finishing of pre-sale preparation. The discipline studies technological regulations that determine the quality of products and by its price parameters. Students acquire practical skills with the products, allowing their careers to forecast supply and demand for it.

**Advanced and applied mathematics: advanced mathematic** The purpose of study of discipline is forming for the students of base mathematical knowledge for the decision of tasks in professional activity, abilities of analytical thought and mathematical formulation of economic tasks which arise up in the process of management. The tasks that need to be addressed in the study subjects, students are gaining knowledge of the main sections of higher mathematics, proving basic theorems forming primary skills: perform operations on vectors, matrices, computing determinants, solving systems of linear equations, the study of shapes and properties lines and planes, curves and surfaces of the second order, of the limits of step-exponential functions.

**Advanced and applied math: applied math. Block 1. Probability theory and math statistic.** The main purpose of teaching is to form future professionals with basic knowledge the basis of a probabilistic-statistical machine to solve theoretical and practical economic problems. The main tasks that needs to be addressed in the process of teaching is to provide students with knowledge of basic definitions, theorems, rules, theorem proving, and the formation of skills: to fulfill qualitative and quantitative mathematical analysis of random events, random variables and systems of values, conduct mathematical treatment of statistical data provide statistical estimation of population parameters.

**Advanced and applied math: applied math Block 2. Math programming.** This discipline teaches students to use methods of economic-mathematical models in their professional careers. The main directions of studding of the discipline are the following: mathematical model in the system of material and ideal models, the research of economic processes through mathematic-economic models, the main methods of modeling of economic processes, mathematical formalization of conditions with changeable technical and economic factors, economic-mathematical analysis of optimal solutions.

**Statistics.** Teaching discipline aims at the formation of future professionals of theoretical knowledge and practical skills in statistical estimation of economic phenomena and processes of social life, mastering the techniques of statistical analysis. The main tasks that need to be addressed in the process of teaching include: cleaning, inspection and evaluation of statistical data, development of statistical forms, construction materials and grouping of statistical monitoring, identifying relationships between different phenomena and processes, establishing its structure, generalized statistical computing machinery indicators (absolute, relative, middle) and their economic interpretation.

**Information systems and technology.** The purpose of teaching of discipline is forming for the future specialists of modern level of informative and computer culture, acquisition of practical skills of work on a modern computer technique and use of modern information technologies for the decision of various tasks in practical activity on specialty.

**Economic theory.** The purpose of study of discipline is a receipt by the future specialists of the detailed economic knowledge, forming for them of logic of economic thought and economic culture, studies of them, the base methods of cognition and analysis of economic processes, ability to accept the grounded decisions concerning economic problems, related with their future practical activity.

**State and regional administration.** A purpose of course is forming of knowledge in industry of management on national and regional levels; acquisition of abilities and forming of jurisdictions, necessary for implementation functions and realization of plenary powers of public and local self-government authorities.

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**Management and administration: theory of organization.** The primary objective of teaching of discipline is forming modern, on the basis of approach of the systems, to the world view in relation to creation, functioning and evolution of organizations. Main tasks which must be the disciplines decided in the process of teaching is: providing of students knowledge is about a theory and practice of functioning of organizations in the changeable terms of modern market socio-economic environment, about adjusting of processes, which in them take place in relationship with an external environment and others like that.

**Management and administration: management.** The primary objective of teaching of discipline is forming for the future managers of modern administrative thought and system of the special knowledge in industry of management, forming of understanding of conceptual system government organizations bases; acquisition of abilities of analysis of internal and external environment, acceptance of adequate administrative decisions.

**Management and administration: operational management.** The primary objective of teaching of discipline is forming for the students of competence in relation to base principles, basic categories, modern conceptions, theoretical positions and practical methods of management of enterprises and abilities of development of operating strategy, creation and use of a particular branch operating subsystems basic activity, as basis of providing of achievement of mission of organization.

**Management and administration: HR management.** The purpose of teaching of discipline is forming of complex of theoretical knowledge and practical skills in relation to forming and realization of skilled policy in modern organizations, rational selection of workers on positions and forming of effective labor collective, evaluation and development of workers, and also the purposeful use of their potential.

**Management and administration: self-management.** The purpose of study of discipline is a capture theoretical knowledge and practical skills on questions personality development of manager; forming for the students of individual features and behavioral skills which need a future leader; development for the future managers of abilities to organize the personal labor.

**Management and administration: management of innovations.** The primary objective of teaching of discipline is a capture modern theoretical bases and practical skills of management of organization innovative activity. Basic tasks which must be the disciplines decided in the process of teaching is theoretical preparation of students and forming for them of skills in the field of management of organization innovative activity. The result of study of discipline is acquisition of the special professional jurisdictions from management innovations.

**Management and administration: strategic management.** The primary objective of teaching of discipline is a capture of strategic management modern theoretical bases and by practical skills of acceptance of strategic decisions in the process of management activity and development of enterprise at the market. Basic tasks which must be the disciplines decided in the process of teaching is theoretical preparation of students and forming for them of skills in the field of strategic management an enterprise.

**Management and administration: administrative management.** The purpose of study of discipline is an increase of efficiency of management organizational structures due to the correct use by the managers of different levels of principles and instruments of administration, to creation of the integral system of administrative management organization.

**Law: administrative law.** The purpose of study of educational discipline is a necessity of preparation of specialists management spheres which will work in the conditions of construction of the legal state and market economy; a study is bodies corporate and politic of laws, which regulates public relations and formed during providing of executive power of realization and defense of rights, freedoms and legal interests of

physical and legal persons also in the process of state administration economic, socio-cultural and administratively political building in the state.

**Law: employment law.** The purpose of study of discipline consists in mastering of volume of knowledge which form legal thought students; acquisition of skills in relation to application of theoretical legal knowledge in practical administrative situations, and also skills of independent work, necessary for the subsequent deepening and timely update of professional manager's knowledge, forming of sense of justice and legal culture, for the future workers of business elite.

**Law: commercial law.** The purpose of discipline is forming for the students of the system of legal knowledge, integral associated with administrative activity; mastering of theoretical knowledge and practical skills, associated with the legal adjusting of economic activity, legal status of subjective manage and public authorities.

**Finances, money and credit.** The purpose of study of course is forming for future specialists on the management of modern economic thought and system of knowledge in relation to general conformities to law of development of modern financial and money-and-credit relations of society.

**Economy and finances of enterprise.** The purpose of study of discipline is forming for the students of modern economic thought and system of the special knowledge about base concepts in relation to economic-financial to activity of enterprise, maintenance of it, separate directions and them relationships systems of indexes, that it is characterized.

**Accounting.** The primary objective of study of discipline future marketing specialists consists in forming of theoretical knowledge and acquisition of practical skills from organization and conduct of record-keeping and lead through of audit of the financial reporting, and also drawing on their results, as an informative base of acceptance of effective administrative decisions. By the basic task of study of discipline detailed general economic and public registration-accountant preparation of specialists and capture by them by principles, facilities, methods and receptions of account of activity of point-of-sale enterprises, and also to the audit them financial reporting.

**Marketing.** Purpose of study of discipline: students - future managers of scientific world view and special knowledge have forming from a theory, methodologies of marketing, making of abilities and skills of realization of administrative functions, on an enterprise on the basis of marketing for satisfaction of necessities of users and providing of effective activity of enterprise.

**Logistic.** The primary purpose of teaching of discipline is forming for the future specialists of system knowledge and understanding of conceptual bases of logistic, theory and practice of development of this direction and acquisition of skills of independent work, in relation to mastering of educational material in relation to the modern methods of management financial and other streams in modern terms.

**Foreign economic activity of enterprise.** The purpose of discipline is a receipt of system knowledge students from objective conformities to law, terms, processes and specific features of foreign economic activity (FEA) of enterprise, and also acquisition of skills, them the practical use..The result of study of discipline is forming for the students of integral imagination about processes in the field of FEA; capture of modern economic thought a culture, by methodological approaches in relation to an analysis and estimation of efficiency of foreign economic activity; forming for the students of abilities and practical skills of the use of the purchased knowledge is in practice of realization of foreign economic activity of enterprises in relation to application of empiric.

**International economic relations.** The purpose of teaching of discipline consists in forming for the future managers of the system of the special knowledge from problems and prospects of development of international economic relations for fundamental and special education and practical activity on specialty. The result of study of discipline is:

forming of integral picture is of processes which characterize the international level of co-operation of national economies; a capture the newest approaches is in relation to the estimation of evolutionary character of development of the system MEV; capture of modern economic thought a culture.

**Introductory to specialty: social communication.** The main purpose of the discipline - the most help students in acquiring the necessary theoretical knowledge and practical skills in the field of social education, transformation of social knowledge, social and self-development to address contemporary social issues. As a result of studying the discipline, students will learn the basic concepts, principles, main categories, trends and patterns of social education for social learning and thus build constructive social dialogue.

**Introductory to specialty: fundamentals** The purpose of discipline is to familiarize students with the features of future profession, its content and objectives of management, the role of managers at different levels in the management of modern enterprises, especially the training of specialists in management.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines "History of Ukrainian Statehood", "Ethnocultural", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language (English, German, French, Spanish)", "Physical Training", "Labour and Life Safety", "Legal Personal Culture" see Section 2.1.

### **2.2. Disciplines offered by students**

#### **2.2.1. Disciplines of common choice**

**Logic.** Discipline "Logic" and contributes to the improvement of crops logical thinking, rational and analytical approach to the analysis of various processes and phenomena. During the study, students gain knowledge of the basic laws of formal logic, forms of reasoning, research methods of modern logic and logical foundations of the theory of argumentation skill and produce clear, consistent and consistently articulate their thoughts clearly and effectively draw conclusions.

**Religious studies.** Discipline examined the phenomenon of religion, its origin, the basic religious concepts, history and present situation of religions, the main provisions of dogma and cult of the most influential religious.

**Foreign language (professional direction): upper intermediate.** Discipline is deepens the students' communicative competence, especially use of skills, abilities and knowledge of a foreign language in the course of business relations with other countries representatives on various professional issues related to management activities, business and the labor market in agriculture, preparation for participation in international conferences, projects and discussions, and presentations, a written exchange of business information (formal and informal letters, resumes the different types of research articles and reports), thus contributing, comprehensive development of the individual student and their socialization in a foreign language society.

**Second foreign language.** Studying the discipline deepens the students' communicative competence in another foreign language, such as the use of skills, abilities and knowledge of a foreign language in the process of business communication with representatives of other countries on various professional issues related to professional



activities, business and the labor market in agriculture economy, preparation for participation in international conferences, projects and discussions.

**Rhetoric and psychology of communication.** During the study course, students learn the basics of speech, functioning of business language under management profession, basic psychological and organizational peculiarities of speech to its implementation and completion, the principles of establishing effective communication with staff and partners and so on.

**Econometrics.** Purpose of the discipline is to teach students how to quantify the relationship of economic indicators for various sets of economic information going into the last test of the appropriateness of certain prerequisites and to determine methods for quantitative measurement of links that are useful in each case according to the characteristics of economic information.

**Basics of scientific research.** The main purpose of teaching is to form future professionals with basic knowledge the basis of a probabilistic-statistical machine to solve theoretical and practical economic problems. The main tasks that needs to be addressed in the process of teaching is to provide students with knowledge of basic definitions, theorems, rules, theorem proving, and the formation of skills: to fulfill qualitative and quantitative mathematical analysis of random events, random variables and systems of values, conduct mathematical treatment of statistical data provide statistical estimation of population parameters.

**Theory of economic analysis.** Academic discipline involves the examination of the theory of economic analysis, practical skills of analytical work, its information and software and developing abilities to use economic logic and economic-mathematical methods to the study of business economics. In the study subjects upcoming expert learns a technique of analysis at different levels of management to a comprehensive evaluation of the results of management, study and definition of internal resources management of material, financial and human resources for science-based decision-making.

**Basics of theory of system and system analyze.** Academic discipline involves the examination of the theory of economic analysis, practical skills of analytical work, its information and software and developing abilities to use economic logic and economic-mathematical methods to the study of business economics. In the study subjects upcoming expert learns a technique of analysis at different levels of management to a comprehensive evaluation of the results of management, study and definition of internal resources management of material, financial and human resources for science-based decision-making.

**Basics of cooperation.** The goal of study course is to explain the basics of formation cooperative identity to a student, understanding of how the cooperative works and its place in modern society. Study the origins of cooperation and influence cooperative identity in the task manager. Grounded cooperatives values and its principles. Analyzes the advantages of cooperatives over other forms of management based on consideration of current trends in global and local socio-economic systems.

**Information systems in management.** Academic discipline covers basic principles and methods of use of modern information technology. Discipline provides the formation of knowledge of modern information technology, makes it possible to acquire skills on the PC operating system and key management software packages and systems. This in turn will quickly and efficiently solve problems on the profile of future profession.

**Economics of world agriculture.** The main goal of mastery of the course is a deep study of patterns of world agricultural equip future professionals systematized and generalized knowledge about agricultural economics of individual countries and regions in the context of global trends in agricultural production and international relations



**National economics.** The purpose of discipline is to study the patterns and the functioning of the national economy compared to other economies. The objective of discipline is to outline the general and special in the national economic system, the identification of institutional factors and their impact on specific economic development, the functional role of the state in managing the economy and its integration into the world economy.

**Biosocial economics.** Discipline is oriented on formation in students views, based on deep knowledge and understanding of present trends in science and technologies in biosocial economy; obtaining detailed and systematic understanding of new conceptual approaches and methods for bioeconomy processes analysis and product development in agriculture and environment; mastering of analytical and methodological skills; formation of sustainable development strategies with further application in public administration and local government in the field of biodiversity and sustainable development, as well as enterprises in the private sector (consulting, agricultural and biotechnology companies, large industrial groups and so on. e.) and in further scientific research.

**Environmental economics.** Environmental Economics - interdisciplinary science study which aims to obtain and use new knowledge in the field of regulation of the relationship between socio-economic development of society and the environment through their organic unity and cooperation, as well as the formation of an economically efficient mechanism for maintaining ecological balance and sustainable use of natural resources . Need the discipline due to the fact that any measures in the agricultural sector should not only environmentally friendly but also cost effective and appropriate

**Organization and planning production in agrobusiness.** The aim of the course - to give future professionals and leaders of the agricultural sector agricultural research knowledge with efficient organization of agricultural production in a mixed economy and the development of market relations. Currently particularly important knowledge of organizational and economic, financial, legal and social foundations of new businesses, farming, farm economic relations in enterprises, which teaches this discipline.

**Organization of entrepreneurial activities.** This subject provides knowledge about the laws that govern the one hand, the economic property relations between entrepreneurs and employees, on the other - the actions of entrepreneurs in the process of selecting resources for production, exchange, distribution and consumption of goods and services.

**Basics of exchange activities.** This subject gives students an idea of the basic tools of the trade used in the global stock market. Future marketing professionals for example stock market learning process of birth for the goods and explore the factors that affect it.

**Basics of agrarian consulting.** The purpose of discipline is to develop initial knowledge from the experts about the basics of extension services, training methods and counseling agricultural producers, organizational structure and working methods of consulting and advisory services in the agricultural sector of Ukraine. As a result, the future of the discipline specialist learns about the nature of the place and role of extension services in the agricultural sector in different countries, the most effective methods of disseminating information, psychological and ethical aspects of information and consultancy activities, modern information technology, especially the economic analysis and advice from the profile of the specialist

**Risk Management.** The purpose of teaching - providing knowledge about the methods of risk assessment parameters that characterize the quantitative relationships between economic variables. Challenges of teaching - learning predictive risk models, acquiring skills to use them in practice economic management. As a result, the study of the course students should know: the nature, subject and object of discipline, modeling of

economic risk system of economic forecasting risks, the social risk prediction methods of technical analysis.

**International economic integration. European integration.** The aim of teaching the discipline - to provide students with modern knowledge of international integration processes and European integration that will allow to form new model of training specialists in management, who will be able to make correct decisions in conditions of European integration of Ukraine. Students will examine: the nature, preconditions and goals of international economic integration; consequences and economic effects of the integration process; regional integration stages and its description; features of forming integration groups in different parts of the world; evolution and characteristics of creating the European Union and mechanism of its regulation; causes and consequences of establishment and reforming the Common Agricultural Policy of the EU etc.

**Economy of enterprise (on the field of economic activity).** Discipline examines key issues and patterns of development of agrarian sector of economy of Ukraine in a reform of land ownership and property. Describes the economic mechanism of the law of value in all sectors of agriculture. The measures improve the efficiency of agricultural production based on his cooperation, integration and intensification.

**Sociology of work.** The main purpose of the discipline - the most help students in acquiring the necessary theoretical knowledge and practical skills in the field of social education, transformation of social knowledge, social and self-development to address contemporary social issues. As a result of studying the discipline, students will learn the basic concepts, principles, main categories, trends and patterns of social education for social learning and thus build constructive social dialogue.

**Standardization and management of production quality.** In studying the discipline, students become acquainted with the basic principles of standardization of products, processes and services and basic concepts used for the certification of safety and quality in Ukraine and in the world, primarily in the European Union. The result of course is the ability to correctly assess the quality of specialist food and used in its production of raw materials and to determine the feasibility of acquiring it, and intended use.

**Marketing Research.** The course "Marketing Research" forming students' understanding of marketing research as a science, an introduction to the history of the emergence of marketing and market research, is in the form of systematic data on the direction, organization and most important methods of marketing research in small and medium business. Important objectives of the course "Marketing research" are: developing knowledge about the nature of marketing research, study the importance of marketing research in a market economy, the definition of goals and objectives of marketing research.

**Tax system.** The purpose of the teaching of this discipline - the study of aggregate financial relations arising in the process of distribution and redistribution of gross domestic product from businesses and individuals to centralized funds, which is the theoretical basis of the discipline. In addition, considerable attention is paid to mastering practical principles of the tax system in Ukraine. This is the future professional to freely navigate in the tax area, objectively assess the changes occurring in tax policy, to understand the nature and trends in tax administration, develop and resolve issues of theory and practice of building the state tax system.

**Banking system.** The purpose of discipline is mastering basic principles of banking operations at the level that after training they can better navigate the issues of the banking system and continue to adapt new knowledge in the process of the specialty.

**Investment.** The purpose of discipline is to develop in students the modern economic thinking and system of special knowledge in the field of investment activity of

enterprises, relevant competencies based on mastering basic theoretical positions and mastering practical skills needed to effectively carry out this activity in the company.

**Financial market.** The purpose of discipline is to enhance the knowledge and skills in students about the deepening the financial market operations, the mechanism of its characteristics and development of global stock market, the policy of portfolio investment. Tasks of the course - to submit the required extent theoretical material, which includes research and development of domestic and foreign scientists; give structural understanding of the principles in the financial relations between issuers, investors, professional participants, regulators and self-regulatory organizations; define a set of measures to ensure optimum risk in the financial market.

### ***2.2.2. Management organization and business administration***

**Economics of labor and social-business relations.** Learning discipline involves consideration of issues: social and economic role of labor in the development of society, the development and use of human resources, theoretical and practical basis for the organization, regulation and remuneration.

**Management of enterprise (on the field of economic activity).** The goal of teaching "Management in agriculture" is to provide students with a comprehensive system of knowledge and skills to manage business processes in agricultural production systems, conditions for effectiveness of economic structures, diagnosis and management system design, adequate to the purposes and objectives of the market economy. Give students the theoretical knowledge and practical skills they study and justify specific proposals concerning topical issues of management in the agricultural sector, production in the agricultural enterprises, creating effective collective and individual farming, development of cadastre and land management.

**Controlling.** Discipline implies that the purpose of the enterprise, the current collection and processing of information for management decision making, executing control deviation evidence from the plan and, most importantly, prepare recommendations for management decisions. Controlling aimed at improving the management and efficiency of economic management at the micro level.

**Marketing activity of enterprise (on the field of economic activity).** . The purpose of discipline is to provide students the theoretical knowledge and practical skills in management, planning and organization of marketing activities of companies in the market of agricultural products. The task is to discipline students acquiring skills in market research of agricultural products (APC), predicting conditions of trade, inventory management and quality of agricultural products, pricing, promotion of goods on the domestic and foreign markets of food, distribution and marketing of domestic products.

**Management of motivation.** The purpose of the discipline - to extend and deepen knowledge of basic theory and practice of management motivation, gain practical skills and motivation skills of different categories of management stuff. The subject of discipline "motivational management" is to determine motivation place in the socio-psychological structure of personality, motivational content of the process, the use of motivational theories in management practices; mastering different methods of motivation of different categories of workers, motivated management teams and groups.

**Analysis of economic and commercial activities.** Discipline is aimed at mastering the theoretical and practical knowledge of arranging and conducting business analysis of agricultural enterprises. In the study subjects upcoming expert learns a technique of analysis at different levels of management to a comprehensive evaluation of the results of management, study and definition of internal resources management of material, financial and human resources for science-based decision-making.

### **2.2.3. Management of foreign activity**

**Marketing in foreign international activity.** The purpose of discipline - the formation of students' theoretical and practical knowledge in the sphere of international marketing activities needed to achieve business goals in international business. The object of discipline is a set of principles of integrated management system international marketing activities in the company and implementation of the basic functions of marketing in international business.

**International trade.** The purpose of discipline is to develop knowledge in the field of international trade; familiarize students with the theoretical basics of international trade and trade policy, the basic concepts of the international movement of goods and services, especially the participation of different countries in the international division of labor, the role and mechanism of the impact of international trade on national economic development, with the regulation of international trade and its institutions.

**Foreign commercial activity.** The students will study the methods and techniques of the trade policies of various countries, international pricing methods, technique and organization of various foreign commercial transactions. During the training course the following questions: commercial transactions in the system of foreign economic relations; features concluding international commercial transactions; functional provision of foreign business enterprise.

**Analysis of economic and foreign commercial activity.** The main purpose of teaching is to form future professionals with basic knowledge the basis of a probabilistic-statistical machine to solve theoretical and practical economic problems. The main tasks that need to be addressed in the process of teaching is to provide students with knowledge of basic definitions, theorems, rules, theorem proving, and the formation of skills: to fulfill qualitative and quantitative mathematical analysis of random events, random variables and systems of values, giving statistical evaluation parameters the population.

**Customs regulations. Customs business.** It is assumed study on establishing the procedure and movement conditions of goods across the customs border of Ukraine, its customs control and customs clearance, the application of mechanisms of tariff and non-tariff regulation of foreign trade activities, collection of customs duties, maintaining customs statistics, the exchange of customs information, management of Ukrainian goods classification of foreign economic activity, exercise under the law of the state control of non-food products at its import on Ukrainian customs territory, preventing and combating trafficking, the fight against customs violations, the organization and provision of customs and other measures for the implementation of state policy in the civil customs, constitute state customs deal.

**Operations management of exports and imports.** The main tasks to be solved in the discipline is: to learn how to develop and use management models for the effective functioning of foreign trade enterprises in foreign markets; mastering the principles and methods of organizing management, planning and control over the implementation of export-import operations; acquiring skills in assessing the performance of export-import operations; assurance quality results of export-import operations; acquiring knowledge about the types, stages of implementation and features of realization of foreign trade operations of foreign economic activity of Ukraine; learning the basic principles of the settlement of foreign currency in Ukraine

## **2.15. FACULTY OF INFORMATION TECHNOLOGY**

**Dean** – Ds.Sc. in Pedagogics, associate professor **Olena Glazunova**

Tel.: 044 527-83-51 E-mail: o-glazunova@nubip.edu.ua

Location: Educational building 15, room 212

The faculty organizes and coordinates Bachelor training in the following specialties:

### ***051 Economy (Specialization «Economic Cybernetics»)***

Graduating departments:

Economic Cybernetics Tel.: (044) 5278724

E-mail: ciber\_chair@nubip.edu.ua

Head of department – Ds.Sc. in Economics, professor, Andrii Skrypnyk

Information systems Tel.: (044) 527-86-07

E-mail: systems\_chair@nubip.edu.ua

Head of the department – Ph.D. in Economics, professor, Mykhailo Shvydenko

### ***122 Computer Science***

Graduating department:

Computer Sciences Тел.: (044) 527-87- 23

E-mail: iusprog@nubip.edu.ua

Head of the department – Ph.D. in Information Technologies, associate professor Bella Golub

### ***121 Engineering software***

Graduating department:

Computer Sciences Тел.: (044) 527-87- 23

E-mail: iusprog@nubip.edu.ua

Head of the department – Ph.D. in Information Technologies, associate professor Bella Golub

### ***123 Computer engineering***

Graduating department:

Computer Systems and Networks Тел.: (044) 527-81- 99

E-mail: csn@it.nubip.edu.ua

Head of the department – PhD. in Pedagogics, associate professor Dmytro Kasatkin

**Bachelor  
in specialty "ECONOMY"  
(specialization "Economic cybernetics")**

Form of Training:	Licensed number of persons:
– Full-time	50
– Part-time	30
Duration of Training	4 years
Credits	240 ECTS
Language of Teaching	Ukrainian, English
Qualification	Bachelor of Economic Cybernetics

**Concept of training**

Specialization "Economic Cybernetics" is a unique combination of computer and economic disciplines, which operates in various fields. The concept of training aimed at forming professionals which are fluent in information technology, management skills the workforce and entrepreneurial activity.

**Practical training**

Practical training of students of this field of study is aimed at mastering basic methods and techniques of economic-mathematical modeling and forecasting of social and economic processes using information systems and technologies in management

**Proposed Topics for Bachelor theses**

1. Models situational diagnosis of the financial condition agricultural enterprises.
2. Optimization of production resources potential.
3. Production functions in optimization problems.
4. The model of banks, leasing companies and stock exchanges.
5. Economic-mathematical modeling of foreign exchange reserves.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of Graduates**

Graduates of the «Economic Cybernetics» can work: the head of a small business, the head of the analytical center of processing economic, financial and accounting information, the head of IT, computer network administrator, administrative tasks and systems, database administrator, analyst of computer systems and so on.



**Bachelor's Program and Curriculum  
in Specialty "ECONOMY"  
(Specialization "Economic cybernetics")**

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Modern economic theory	1,2	150	5
2	Macroeconomics	4	120	4
3	Microeconomics	3	150	5
4	Higher Mathematics	1,2	240	8
5	Probability Theory and Mathematical Statistics	3,4	240	8
6	Optimization Methods and Models	3	150	5
7	Informatics	1,2	180	6
8	Econometrics	4	150	5
9	Enterprise Economics	6	120	4
10	Management	5	120	4
11	Marketing	5	120	4
12	Finances	7	120	4
13	Money and credit	3	150	5
14	Accounting	4	120	4
15	Economy	8	120	4
16	International Economics	8	120	4
17	Statistics	5	120	4
18	Economic Cybernetics	2	120	4
19	Operations Research	4,5,6	270	9
20	Modeling economy	6,7	180	6
21	Prediction of socio-economic processes	7	120	4
22	Decision-making systems	8	120	4
23	Technology design and administration of DB and SD	5,6	180	6
24	Information systems and technology management	7,8	180	6
25	Project Management Informatization	6	120	4
	Practical training		540	18
Total for standard part			4320	144
2.ELECTIVE ACADEMIC DISCIPLINES				
2.1.Disciplines offered by University				
1	Philosophy	3	120	4
2	History of Ukrainian statehood	1	90	3
3	Ethnic culture science	2	90	3
4	Ukrainian language (for professional purposes)	1	120	4
5	Physical education	1,2,3,4	150	5
6	Safety of activity and life	5	120	4
7	Foreign language	1,2	150	5
8	Legal culture of personality	4	90	3
9	Mathematical models of agricultural sector	7	90	3
	State attestation		60	2
Total (Disciplines offered by University)			1080	36

<b>2.2. Disciplines offered by student</b>				
<b>2.2.1. The cycle of humanitarian and economic preparations</b>				
1.	Foreign language	3,4	120	4
2.	Public communications	1	120	4
3.	Technology of crop production	2	120	4
4.	Technology production of livestock products	2	120	4
5.	Agribusiness organization	7	120	4
<b>Total</b>			<b>600</b>	<b>20</b>
<b>2.2.2. The cycle of professional and practical training</b>				
<b>Cluster "Business analytics"</b>				
1	Technology of software developing	3,4	180	6
2	WEB programming	6,7	180	6
3	System analysis and design of IS	8	120	4
4	Science of risk	5	120	4
5	IBM SPSS Tools	8	120	4
6	Analysis with R	5	120	4
7	Applied econometrics	6	120	4
8	Simulation	7	120	4
9	Agribusiness Risks	8	120	4
<b>Total (block)</b>			<b>1200</b>	<b>40</b>
<b>Cluster "Business process modeling"</b>				
1	Technology of software developing	3,4	180	6
2	WEB programming	6,7	180	6
3	System analysis and design of IS	8	120	4
4	Science of risk	5	120	4
5	IBM SPSS Tools	8	120	4
6	Modeling with R	5	120	4
7	Mathematical economics	6	120	4
8	Adaptive models in economics	7	120	4
9	Modeling of investment processes	8	120	4
<b>Total (block)</b>			<b>1200</b>	<b>40</b>
<b>Total (Disciplines offered by student)</b>			<b>1800</b>	<b>60</b>
<b>Total for elective part</b>			<b>2880</b>	<b>96</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training course		870	16
2	Academic Practice		540	18
<b>Bachelor Thesis writing (Graduate thesis or Project)</b>			<b>120</b>	<b>4</b>
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

### Annotation of disciplines in the curriculum

#### 1. Standard academic disciplines

**Modern economic theory** Buyers and consumer goods. Social production resources. Commodity production - the basis of the market economy. Money in the functioning of the market. Market economic mechanism Levels types of markets and market infrastructure. Formation of the market Entrepreneurship. Home improvement in

the functioning of a market economy. Enterprise Management. Management. Marketing. Macroeconomic equilibrium. Macroeconomic instability

**Macroeconomics.** Theoretical foundations of macroeconomics as a science. The method of calculation of basic macroeconomic indicators. Macroeconomic instability, unemployment and inflation. Aggregate demand and aggregate offering. Consumption, savings and investment, the total expenditure and GDP, economic functions of the state: the state in a system of macroeconomic regulation. Fiscal Policy. Money Market and Monetary Policy. Labor market and social policy. The open model of macroeconomic circulation and economic growth.

**Microeconomics.** Methodological principles of microeconomic analysis of economic behavior of market participants. Universal tools of rational economic decisions. Patterns of functioning microsystems individuals, households, businesses and organizations. Characterization and analysis of the major types of market structures - perfect competition, pure monopoly, monopolistic competition, oligopoly. Effect of general market equilibrium in the allocated efficiency of the economy, the limited failure of market regulation, welfare criteria, the need for intervention

**Higher mathematics.** Sets and functions: operations with sets, display sets, limitations, accurate numerical limits set, the principle of Cantor nested segments are equivalent sets, counted and countless sets. Theory border sequences, limit functions, partial, upper and lower limit function. Continuity of functions: local properties of continuous functions, properties of continuous functions on the interval. Differential calculus of functions of one variable: derivatives and differentials of arbitrary order, au-tic properties of differentiable functions, Taylor's formula and studies on extreme and graphing functions. Indefinite integral: primitive and indefinite integral, their properties change of variables and integration by parts, Tables of integrals, methods of integration: rational functions

**Probability Theory and Mathematical Statistics.** Basic concepts. Classification of random events. Probability of random events. Classical, Statistical and geometrical definition of probability. Almost reliable and virtually impossible event. Numerical characteristics of random variable the expected value, variance, standard deviation, moments, kurtosis, mode, median. Laws normal probability distribution, performance, uniform, Puasson. Correlation coefficient. Chebyshev inequality. Grouping information. The principle of defining and testing the null hypothesis. Criteria for approval to test the hypotheses.

**Optimization Methods and Models.** Conceptual aspects of mathematical modeling of the economy. Optimization of economic-mathematical models. Linear programming problems and methods of solution. The theory of duality. Integer programming. Special problems of linear programming. Models of nonlinear programming. Quantitative risk assessment. Mathematical methods for solving linear programming problems, the scope of their applications, advantages and disadvantages. Basic mathematical methods for solving problems of nonlinear programming advantages and disadvantages; mathematical tools build econometric models.

**Informatics.** Object, methods and objectives of discipline, the theoretical foundations of computer science, information system support processes, software tools work with structured documents, network technology, the use of Internet in the economy, Essentials of Web-design, organization of computer security and information protection software works with databases and storage of data, basic office programming expertise and training systems, the prospects for the development of information technology.

**Econometrics.** Principles of constructing econometric models. Multiple regression models. Generalized econometric models. Econometric models of dynamics. Mathematical building of econometric models. Method of constructing econometric models. Methods of calculating the parameters of models on personal computers using software packages.

**Enterprise Economics.** Types of companies and their legal forms. Theories and models of enterprise and entrepreneurship basics. The external environment of the enterprise. Staff enterprise productivity. Remuneration of personnel: basic forms and systems. Technological base of production and production capacity. Fixed and working capital: estimation and performance of fixed assets and how they play, composition and turnover of working capital performance. Intellectual capital and its characteristics. Investments: concept, composition, structure, development of investment projects. Forecasting and planning of the company. Justification of the production program of the enterprise. Financial and economic performance and efficiency. Systems to ensure competitiveness.

**Management.** Organization as an object of management, the nature and characteristics of the management, the development of ideas about management. Principles and methods of management. Internal and external environment of the organization: Communication in management and decision-making. Planning organization: Organizational structure. The motivation of the employees of the organization, system and process control in the organization. Formation and development of staff, management and leadership. The efficiency of the management of the organization.

**Marketing.** The essence of marketing and its modern concept. System and characteristics of modern marketing. Marketing Research. Marketing product policy. Planning for new products. Marketing pricing. Methods for marketing pricing. Marketing communications policy. Complex marketing communications. Marketing policy distribution. Managing channels of distribution. Organization and control of the marketing of the company.

**Finance.** The subject of financial science. Financial category. The genesis and evolution of finance. Finance and financial policies. Taxes and tax system. Budget. The budget system. Insurance. The insurance market. Financial Market. Finance businesses. International finance. Financial Management.

**Money and Credit.** Purpose and function of money, Money and cash flows, money market, money system, inflation and monetary reforms, foreign exchange market and currency system. Mechanism of the money supply and monetary policy, the role of money in a market economy; theory of money, credit essence and function, form, type and role of credit; Theoretical Foundations percent; Financial intermediation money market; Theoretical basis of commercial banks, central banks in the system monetary and banking management, international financial institutions and their cooperation with Ukraine..

**Accounting.** Overview of accounting, its subject and method. Balance. Accounts bookkeeping and double entry. Evaluation and calculation. Documentation, inventory, equipment and forms of accounting. Accounting for fixed assets. Accounting for inventories. Accounting for cash and receivables. Accounting of financial investments. Accounting for equity. Accounting for liabilities. Accounting for labor and its remuneration and social security staff. Expenditure of the company. Revenue and financial results. Financial Statements.

**Economy.** Types of companies and their legal forms. Theories and models of enterprise and entrepreneurship basics. The external environment of the enterprise. Staff enterprise productivity. Remuneration of personnel: basic forms and systems. Technological base of production and production capacity. Fixed and working capital: estimation and performance of fixed assets and how they play, composition and turnover of working capital performance. Intellectual capital and its characteristics. Investments: concept, composition, structure, development of investment projects. Forecasting and planning of the company. Justification of the production program of the enterprise. Financial and economic performance and efficiency. Systems to ensure competitiveness.

**International Economics.** International Economic System: subjects and objects of international economics. International economic activity: the theory of international trade and international economic activity. The world market for goods services: types, current trends, pricing in international trade. Global financial markets: financial resources, species. Global labor market and international labor migration. The world monetary system: the nature, structure, stages of development, especially the foreign exchange market. Globalization of economic development: the nature, characteristics, consequences, contradictory, role of international organizations in addressing global world problems. Ukraine's integration into the world economy.

**Statistics.** methodological principles of statistics, statistical observations, reports and statistical clustering data summarizing statistical indicators, analysis of the distribution of numbers, concentration analysis, differentiation and similarity distributions, sampling method, statistical methods for measuring relationships, analysis of the intensity dynamics, analysis of trends and fluctuations; index method, presenting statistical data: tables, graphs, maps.

**Economic Cybernetics.** Terms of cybernetics. Introduction to applied mathematics. Introduction to information theory. Systems theory. Management of production systems. Methods of Economic Cybernetics.

**Operations Research.** Essence phases of operations research, principles and methods of mathematical modeling operations, principles of selection and mathematical software for practical implementation problems. Queuing models. Models of management. Models of human behavior. Models of risk management.

**Modeling economy.** Methodology and methods of modeling. Mathematical models of real economic systems. Conceptual Foundations of Economic Modeling. Algorithmic models in economics. Production functions. Rated assessment of the economy. Model behavior of producers and consumers. Input-output model. Macroeconomic models.

**Prediction of social and economic processes.** Theoretical basis of forecasting of socio-economic systems and algorithms for basic forecasting methods modern transformation processes. Mathematical modeling as a method of forecasting. Extrapolation prediction. Adaptive forecasting methods. Expert prediction.

**Decision-making systems.** The main principles of decision theory. The process of making and implementing management decisions. Expert methods and decision-making. Methods and systems of decision making under certainty. Methods and systems of decision making under risk. The utility theory at decision making. The methods and decision-making in conflict.

**Technology of design and administration of DB and SB.** Relational data model that accommodates relational algebra and relational calculus. The classic approach to database design based on the principles of normalization. Top features of the approaches to semantic modeling of databases, the issues of planning, development, implementation and maintenance of databases, introduction to structured query language SQL, data types used in SQL, means the definition of database objects, data manipulation, data retrieval tools. Utilities databases and applications to databases in integrated development environments Access. Features of the databases to MySQL. The principles of expert systems, neural networks, principles of knowledge bases.

**Information systems and technologies of management.** The essence of information systems and their importance in managing of modern enterprises. Status and trends in information technology. Methodology for developing information systems to determine their quality and efficiency. Fundamentals management of information resources and technology. Formation of structure information in the enterprise. The use of integrated automated information systems in business. Determination of the main characteristics of expert systems. The use of artificial intelligence technology in the

management of organizations. Using the Internet in management cadres. The use of e-commerce in practice organization.

**Project management information.** The theoretical basis of project management. Classification and environment projects. The life cycle of the project. Using standard life cycles. information systems. The structure of the project. Managing the implementation of project-oriented activity. Activity organization. Planning in UP. Control in project management. Management of the project. Management subject area projects. Managing time in the project. Cost Management. Quality management of the project. Integrated project management functions. Automation functions of project management.

## **2. Elective academic disciplines**

### **2.1. *Disciplines offered by University***

Annotations of the disciplines: "Philosophy", "History of Ukrainian statehood", "Ethnic culture science", "Ukrainian language (for professional purposes)", "Physical Education", "Foreign language", see. section 2.1.

**Safety of activity and life.** Human life and health under adverse environmental factors of work and residence. Legal and regulatory framework for the protection of human.

**Legal culture of personality.** Basics of theory of law. Principles of Constitutional Law. Principles of justice and policing in Ukraine. Basics of administrative, financial and criminal law. Basics of civil, family, commercial, labor, environmental, agricultural, natural-resource and land rights.

**Mathematical models of agricultural sector.** Subject, content, tasks and structure of the course. Classification Features models modeling of technological processes in animal husbandry. Features of construction of models of technological processes of crop. Theory and practice of economic-mathematical analysis in agricultural production planning and evaluation of its effectiveness in market conditions. Agricultural enterprise as an object of modeling.

### **2.2. *Disciplines offered by student***

#### **2.2.1. The cycle of humanitarian and economic preparations**

**Public communications.** Research Methodology Social Communications. Theory and history of social communications. Social and communication technology. Social Communication in management.

**The technology of crop production.** Status and trends of the main crop in Ukraine, values and biological characteristics of crops, species and crop varieties, use, distribution, and potential productivity and performance, modern high-growth technology, environmentally-friendly crop yields in different soil-climatic zones of Ukraine , ways and means of improving the quality of agricultural products, measures to prevent crop losses during harvesting. Transportation and storage, ways to reduce labor costs for crop production

**Technology of livestock production.** Research and theoretical foundations processes and evaluation of animal products. Effective implementation of the selection process in the desired direction and organization of biologically reasonable and economically feasible production technology, processing and storage of animals. System control practices integrated complex processes, based on which the technology of production, processing and storage of animals. The principles of process streams of raw

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materials. Production of meat, fish and dairy products, eggs of different purposes of destination.

**Agribusiness organization.** Theoretical Foundations of production. Analyze of agro-processes. Technical and economic indicators rational organization of production systems. Selection and justification of the production structure of the enterprise. Specialization of production. Organizational, technical, and economic elements of production.

## 2.2.2. The cycle of professional and practical training

### *Cluster "Business analytics"*

**Technology of software developing.** Basic concepts of modern programming. Linear, structural, procedural and modular programming. Basics of object-oriented modeling, design and programming. Processing complex data structures and files Design of a graphical user interface. The main stages of the life cycle of software.

**WEB programming.** The basic structure of language, layout techniques and communication with other development tools WEB-pages. Using of Cascade Style Sheets CSS in HTML. Description Syntax CSS, accommodation options describing CSS in the document body and beyond, CSS attributes for block and lowercase markup. Methods for positioning of the markup with CSS. Basics of programming in JavaScript. Logic development JavaScript-code and the basic principles of its use in the pages of World Wide Web programming language PHP. Client-server technology as the main area of application of the PHP language.

**System analysis and design of integrated circuits.** Information technology and systems: general characteristics. System analysis Structural and functional analysis of IS. The specification of functional requirements for ICs. Simulation data streams. Object-oriented analysis. Standard of IS design and execution of project documentation. Tools of IS design. Model of databases. Standard UML: static and dynamic charts.

**Science of risk.** Quantitative methods of risk assessment. The function of personal utility. Quantitative risk assessment characteristics. Playing methods of decision making under uncertainty. Solving conflicts using game techniques. The fundamental relationship of risk and return. Fundamental value risk and profitability of individual financial market instruments. Tools IBM SPSS.

**IBM SPSS Tools.** Overview of statistical packages. Data management in IBM SPSS. Graphical capabilities package, creating charts. Formation of descriptive statistics and frequency analysis. Contingency tables and chi-squared test. Comparison medium dependent and independent samples and non-parametric tests in SPSS. Univariate and multivariate analysis of variance. Carrying factor and discriminant analysis software package. Reliability analysis of economic data and logistic regression. Lohliniynny analysis of contingency tables

**Analysis with R.** Introduction to R. Analysis tools. Basics of R programming. Data structures in R. Reading and writing data. Working with R libraries and packages. Descriptive analytics. Statistical Analysis in R: mean, median, mode, range, variance and standard deviation, quantities. Graphical description of the data. Simple Linear Regression. Multiple Linear regression. Logistic regression.

**Applied econometrics.** Basic principle of construction econometric models. Econometric models of agricultural production. Spatial simultaneously models. Elasticity evaluation of production process individual inputs. Dynamic models for a particular farm. Multikoliniarity in agricultural business analyze. The time series analysis (price dynamics of global markets). Econometric models of supply and demand. Panel regression. Forecasting using ARIMA \* ARIMAS.

**Simulation.** Simulation model. Simulation model experimental method for the study of complex systems on the computer. The basic steps of building a simulation model - Application of Monte-Carlo method. Computer simulation of random events, and discrete random variables. Planning of experiments in simulation modelling. Multi-factor correlation-regression analysis. Simulation model of reserves control. Simulation model of discrete-production process. Implementation of a simulation model by means of batch simulation of discrete systems GPSS World and AnyLogic. Advances and prospective development of simulation modeling of agricultural production systems.

**(Agribusiness Risks).** Analysis, methods of quantitative valuation and risk modeling of agricultural sector. Fundamentals of risk management activities of modern agribusiness. Conceptual approaches to manage risk and minimize them - diversification, insurance, hedging, obtain additional information. Risk management strategies for farms. Development of agricultural policy for minimizing risks.

### ***Cluster "Business process modeling "***

**Technology of software developing** Basic concepts of modern programming. Linear, structural, procedural and modular programming. Basics of object-oriented modeling, design and programming. Processing complex data structures and files Design of a graphical user interface. The main stages of the life cycle of software.

**WEB programming.** The basic structure of language, layout techniques and communication with other development tools WEB-pages. Using of Cascade Style Sheets CSS in HTML. Description Syntax CSS, accommodation options describing CSS in the document body and beyond, CSS attributes for block and lowercase markup. Methods for positioning of the markup with CSS. Basics of programming in JavaScript. Logic development JavaScript-code and the basic principles of its use in the pages of World Wide Web programming language PHP. Client-server technology as the main area of application of the PHP language.

**System analysis and design of integrated circuits.** Information technology and systems: general characteristics. System analysis Structural and functional analysis of IS. The specification of functional requirements for ICs. Simulation data streams. Object-oriented analysis. Standard of IS design and execution of project documentation. Tools of IS design. Model of databases. Standard UML: static and dynamic charts.

**Science of risk.** Quantitative methods of risk assessment. The function of personal utility. Quantitative risk assessment characteristics. Playing methods of decision making under uncertainty. Solving conflicts using game techniques. The fundamental relationship of risk and return. Fundamental value risk and profitability of individual financial market instruments. Tools IBM SPSS.

**IBM SPSS Tools.** Overview of statistical packages. Data management in IBM SPSS. Graphical capabilities package, creating charts. Formation of descriptive statistics and frequency analysis. Contingency tables and chi-squared test. Comparison medium dependent and independent samples and non-parametric tests in SPSS. Univariate and multivariate analysis of variance. Carrying factor and discriminant analysis software package. Reliability analysis of economic data and logistic regression. Lohliniynny analysis of contingency tables

**Modeling with R.** Introduction to R. Objects, packages, functions and devices. Data types in R. Time series. Organization of computations, functions, branches, loops. Computing in R using apply-functions. The basic graphics capabilities in R. Descriptive statistics and distribution laws. Selection of the law and the distribution parameters in R. Test for normality of distribution. Classical statistical models. Analysis of variance. Generalized regression model. The modeling of structural equations.

**Mathematical Economics.** The partial derivatives economic content. Optimization problems in the presence and absence of restrictions. The Lagrange multipliers method o its economic interpretation. Kuhn-Tucker conditions. The firmn eoclassical theory. Comparative firm statistics. Imperfect competition (monopoly, monopsony). The equilibrium theory. The welfare economy. Social optimum concept.

**Adaptive models in economics.** The concept of adaptation in the economy. The principles of adaptive modeling. Classification of adaptive models. Cybernetic concept of study. Adaptive correlation coefficient. Autoregression methods of analysis the main trends in the time series. Autocorrelation analysis method.

Stages of creating of the adaptive predictive model. Methods of automatic control the short-term forecasting. Method of Chow. Model of Chow. Selection of prognosis criteria. Comparative analysis of Chow models and exponential average models. The principle of Trigg Method adaptation. The method of monitoring the model adequacy (Trigg Method). Trigg-Lich Model. Holt-Winters Model. Tamara Method. Adaptive filtering method.

**Modeling of investment processes.** Innovation concept. Innovation and investment. Innovation and risk. The fundamental relationship between profitability and risk in applications to innovation. Adoption criteria of innovative solutions in risk terms. Risk tolerance and acceptance of innovative solutions. Relative effectiveness of innovation estimates.

**Bachelor**  
**in specialty "COMPUTER SCIENCE"**  
**field of knowledge "Information Technology"**

Form of Training:	Licensed number of persons:
– Full-time	50
– Part-time	50
Duration of Training	4 years
Credits	240 ECTS
Language of Teaching	Ukrainian
Qualification	Bachelor of Information Technology

**Concept of training**

Specialty "Computer Science" is preparing a broad specialists to participate in a variety of areas that require basic knowledge of mathematics, physics, computer science, natural sciences, humanities and social and economic disciplines. Specialist focused on solving problems of analysis and synthesis of complex systems based on the latest information technologies with modern advances basic and engineering sciences.

**Practical training**

Practical training of students of the field of study is aimed at mastering the basic methods and techniques of information systems development.

**Proposed Topics for Bachelor themes**

1. Create subsystems authorization of electronic commerce
2. Develop and implement protocols to exchange information between the industrial and computer interfacing management regimes in poultry house
3. Development of a conceptual model database of the control of power consumption
4. Development of a conceptual database model agricultural enterprise information system
5. Development of smart dose of the flotation reagent drinking water

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of Graduates**

Graduates field of study "Computer Science" can work: software engineer, administrator local and corporate networks, expert in the design and development of information and automated systems, artificial intelligence and expert systems, expert in Web- design, etc.

### Bachelor's Program and Curriculum in Specialty "Computer Science"

№	Name of Academic Discipline	semester	Number	
			hours	ECTS credits
1. STANDART ACADEMIC DISCIPLINES				
1.	Higher Mathematics	1,2	420	14
2.	Physics	1,2	180	6
3.	Numerical methods	3	120	4
4.	Discrete Mathematics	3	180	6
5.	Probability theory , probabilistic processes and mathematical statistics	4	150	5
6.	The theory of algorithms	4	90	3
7.	Decision theory	7	120	4
8.	Ecology	5	60	2
9.	Mathematical Methods of Operations Research	5,6	120	4
10.	Electrical engineering and electronics	2	90	3
11.	Computer circuitry and architecture of computers	2,3	150	5
12.	Computer Graphics	3	90	3
13.	Algorithmic and Programming	1,2	150	5
14.	Technology of software	5	150	5
15.	Organization of databases and knowledge	3,4	180	6
16.	System Analysis	6	120	4
17.	Computer Networks	6	150	5
18.	Methods and systems of artificial intelligence	7	90	3
19.	Modeling systems	4	120	4
20.	Object - oriented programming	3,4	180	6
21.	Design of Information Systems	7	120	4
22.	IT project management	7	120	4
23.	Operating Systems	5	120	4
24.	Web- technologies and Web- design	5,6	150	5
25.	Cross- platform programming	7	120	4
26.	Technology Information Protection	7	120	4
27.	Technology distribution systems and parallel computing	6	180	6
28.	Computer Design Technology	8	120	4
29.	Data mining	7	120	4
30.	The project technological practice		270	9
Total for standard part			4350	145
2.ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1.	The history of Ukraine and ethnocultural	1	190	3
2.	Ukrainian language ( for professional purposes)	1	190	3
3.	Philosophy	1	120	4
4.	Foreign Language	4	120	4
5.	Legal culture of personality	1-4	150	5
6.	Safety and life	6	90	3
7.	Physical Education	8	90	3
8.	Degree design	1-4	120	4
9.	Pre-diploma practice		120	4
Total (Disciplines offered by University)			1170	39
2.2. Disciplines offered by students				
1.	Management	5	90	3

2.	Economy and Business	6	90	3
3.	Information Technology	1-2	150	5
4.	Programming C #	4	150	5
5.	Algorithms and Data Structures	5	150	5
6.	Technical communication tools	5	120	4
7.	Java Programming	6	120	4
8.	Programming Mobile Application	8	120	4
9.	Intelligent Systems	8	150	5
10.	The theory of pattern recognition and classification in artificial intelligence systems	8	150	5
11.	Statistical methods, theory flows of events	5	150	5
<b>2.2.1. Specialization " Information Control Systems and Technologies</b>				
1.	Microprocessor control system	7	120	4
2.	Technology development ICS	8	120	4
3.	Modern management theory	8	120	4
Total specialization			<b>360</b>	<b>12</b>
<b>Total (Disciplines offered by students)</b>			<b>1680</b>	<b>56</b>
<b>Total for elective part</b>			<b>2850</b>	<b>95</b>
<b>2.2.2. Specialization " Computer Ecological and Economic Monitoring»</b>				
1.	Computer system ecological and economic monitoring	7	120	4
2.	Technology development ICS	8	120	4
3.	Industry Environmental Monitoring	8	120	4
Total specialization			<b>360</b>	<b>12</b>
<b>Total (Disciplines offered by students)</b>			<b>1680</b>	<b>56</b>
<b>Total for elective part</b>			<b>2850</b>	<b>95</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	<b>Military training course</b>		870	16
2	<b>Academic Practice</b>		540	18
<b>Bachelor Thesis writing (Graduate thesis or Project)</b>			<b>120</b>	<b>4</b>
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

## Annotation of disciplines in the curriculum

### 1. Standard academic disciplines

**Higher mathematics.** Complex numbers. Elementary functions. Continuity of functions. Derivative and differential functions. The study of functions, building graphs. The original, indefinite integral. Definite integral. Functions of several variables. Extreme functions necessary and sufficient conditions. Multiple and curvilinear integrals. Numerical, functional, degree Fourier series. Differential Equations. Linear algebra and analytic geometry.

**Physics.** Kinematics. Dynamics. Conservation laws. Thermodynamics. The ideal gas. Statistical distributions. Real gas. Phase equilibrium. Static electric field. An electric current. Static magnetic field. Electromagnetic waves. Dynamic electromagnetic field. Maxwell's equations. Mechanical and electromagnetic waves. Mechanical and electromagnetic waves. Optics. The basic principles of quantum physics. Quantum theory of atoms.



**Numerical Methods.** Direct methods for solving systems of linear equations. Solving systems of linear equations of large dimension. Numerical methods for solving nonlinear equations. Calculate the Eigen values and Eigen vectors of the matrix. Numerical differentiation and integration of functions. Solution of the Koshi problem for ordinary differential equations. Many stepping methods for solving differential equations. Implicit methods for solving hard problems. Boundary-value problems for ordinary differential equations. Integral Equations. Solving partial differential equations methods grids, finite elements, direct and iterative. Difference methods for solving parabolic equations. Methods for solving hyperbolic and elliptic equations. Methods of interpolation functions. Approximation of functions. Extrapolation and convergence features.

**Discrete Mathematics.** The theory of sets and relations. Combinatorial analysis. Mathematical logic. Logic of statements. Predicate logic. Graph Theory. Trees. Fundamentals of coding theory. The theory of formal grammars. The theory of finite automata.

**Probability Theory and Mathematical Statistics.** Basic concepts. Classification of random events. Probability of random events. Classical, Statistical and geometrical definition of probability. Almost reliable and virtually impossible event. Numerical characteristics of random variable the expected value, variance, standard deviation, moments, skewness, kurtosis, mode, median. The principle of defining and testing the null hypothesis. Criteria for approval to test the hypotheses.

**The theory of algorithms.** Mathematical Foundations of analysis algorithms. Algorithmic strategies. Basic theory of computability. Complexity classes P and NP. Algorithms for sorting, merging and searching. Combinatorial, recursive, geometric, cryptographic algorithms and heuristics. Fundamental algorithms on graphs and trees.

**Decisions making theory.** General aspects of decision-making. Binary relations and decision-making. Attitude and expert evaluation. Models and methods of decision-making under conditions multi criteria. Decision making by analytical hierarchy. The concept of utility and rational choice. Models and methods of decision-making under fuzzy information, uncertainty and risk. Models and methods of multi personal decisions. Game theory, strategic and statistical game. Psycholinguistic aspects of decision-making.

**Ecology.** The laws of ecology. Environmental factors and their impact on the environment. Areas of environmental protection and environmental management. Methods to reduce the impact of environmental factors.

**Mathematical Methods of Operations Research.** Construction of mathematical models of problem situations. Linear and nonlinear, discrete and stochastic programming. Duality. Post optimal analysis. Parametric programming. Principles of discrete programming. Methods of ZCLP solution. The method of branch and bound. Dynamic programming. Stochastic Programming. Optimization methods: features that differentiated functions matched are not differentiated in high dimensional problems. Objectives and methods of multicriteria optimization.

**Electrical engineering and electronics.** Basic concepts and laws of electric and magnetic circuits. DC circuit. Circuit of single-phase sinusoidal current. Transients in RLC-circuits. Operator method for calculating transients. Semiconductor referrals and contacts. Transistors. IC. Rectifiers and converters. Amplifiers and generators. Discrete electronic devices.

**Computer circuitry and computer architecture.** Method of image information. Logical foundations of building elements. Circuitry combinational nodes. Digital circuitry and service elements of digital and analog components. Power sources. Circuitry combinational nodes. Digital computers. Memory. Processors. Supercomputers. Parallel computing systems. Universal microprocessors. MP support schemes on the system board. Structures of microprocessor systems. RISC-processors.

**Computer Graphics.** Raster and vector graphics. Modern graphics system. Use of graphics API. Fundamental techniques in graphics. Two-dimensional and three-dimensional clipping. Algorithms for generating lines. The use of coordinate transformations. Basic theory of transformations Euclidean and affine transformation. Simple color model. The parallel and central projection. Approximation of spline curves and surfaces. Fractal curves and surfaces. Polygonal representation of three-dimensional objects. Visualization and Computer Animation.

**Programming.** The concept of the algorithm and model algorithmic structure programming. Elements of algorithmic languages: the concept of data types, names, values, indexes, variables, constants, operations, expressions. Structured programming: sequence, branching and loops. Procedure-oriented programming. Recursion. Software development methodologies: top-down and bottom-up design, modular programming. Organization of data arrays, strings, structures and algorithms for their processing. File data structure. Dynamic data structures lists, queues, stacks, binary trees and algorithms for their processing. Algorithmic common computing tasks..

**Technology of the software products creation.** The concept of software development and the problems of complex software. The life cycle and software development processes. International and national standards for developing complex software products. Software development methodologies RUP, MSF, XP, DSDM, RAD. Software architecture, standards describing software architectures. Software design patterns. Automation software development. Software quality metrics, software quality standards. Verification, validation and testing. Standards for testing. Testing and maintenance of software products. Documenting and marketing software..

**Systems and Technology of database Management.** The main design principles database. Items of a relational database. Databases MS SQL SERVER. Table relational database. The notion of relational databases. Optimize time access to the database. Managing transactions. Processing algorithms that are stored on the server. Controlling access to the database.

**System analysis.** Building system models of problem situations. Concepts and patterns of system analysis. Methods of system analysis. System analysis Business process objects computerization. Disclosure of the uncertainties in system analysis problems. Objectives and methods of system analysis multivariate risks. System management of complex objects. Standards documentation system solutions.

**Computer networks.** General principles of the structure of computer networks. Local network. Network architectural solutions. Minutes of the lower level of large networks. General questions of network design. Minutes of medium and high level networking. Controls networks.

**Methods and systems of artificial intelligence.** The concept of artificial intelligence. The concept of smart and intelligent problem IS FROM. Methods submission intellectual tasks and methods of finding solutions. Knowledge and knowledge representation model in SSHI. Semantic Grid SS: basic concepts, types, methods, and describe a logical conclusion to the SS. Frames: basic concepts, structure frame. Frame system. Expert Systems EC: purpose and principles of the generalized architecture, classes of problems that are solved by EC. Modern software and tools create SSHI: Visual Prolog. Allegro CLOS, CLIPS, JESS. Languages functional and logic programming.

**Systems modeling.** Models of queuing systems. Petri nets. Probabilistic modeling. Simulation. Software simulation. Planning and conducting experiments with models. Action on the simulation results. Simulation and industrial computer systems.

**Object-oriented programming.** The concept of object-oriented analysis, design and programming. The object model of the objective environment, the principles of its construction. The concept of objects, classes, and their relationships. Fundamentals of object-oriented design language UML. Fundamentals of object-oriented programming

language. Data Abstraction and Encapsulation. Constructors, destructors classes. Transshipment of operations and functions. Static constant class members, friendly features and classes. Composition and collection facilities. Simple and multiple inheritance. Implementation of polymorphism. Patterns of functions and classes. Handling of exceptional situations. Classes of input and output streams. The standard class library media program developer. Class library of functionality of Windows. Development of graphical user interfaces. Basic programming, event-driven. Development of DLL-libraries.

**Information systems designing.** Approaches, principles and technologies of design IP. System and inductive approaches to IC design. Data models, process models and their design using Erwin. Standard UML: static and dynamic diagrams. Create reports using RPTS. Designing interfaces of information systems. RAD-methodology and CASE-technology creation and maintenance of IP. Technology RUP. Technology ARIS. Pahhern technology. Reengineering IP

**IT project management.** Basic concepts and methodology for managing IT projects. The life cycle of the product. Requirements management, organization design and resource management, quality, cost and risk of the project. Project Planning. Procedures and project management system. Methodology for functional simulation IDEF0. The methodology describing business processes IDEF3. Models project teams: MSF Microsoft, RUP IBM, CDM Oracle PMI-PMB

**Operating systems.** Basic concepts, evolution, variety of operating systems. Architecture and operating system resources. Planning and management of processes and threads. Multitasking, the interaction of flows, inter processor interaction. Manage RAM. The organization of memory in protected mode, control memory allocation. The logical and physical organization of file systems. Implementing file systems. Executable files. Manage O devices. Network tools Operating Systems. Interaction with the user in operating systems. Protection in operating systems. Download and administration of operating systems. Multiprocessor and distributed system.

**Web technology and web design.** The structure and principles of the Web. Launching client-server technology Web. Protocol HTTP. Custom scripts and applications. Server-side Web applications. JavaScript. Languages Development Scripting Perl, PHP, JSP. Developing applications for CGI-Perl, PHP, JSP. Basics of web applications using PHP. Interfaces Web applications interact with the DBMS. Web services and their description languages. Based on XML. Web content. CMS / CMF. Technology AJAX. Web Design.

**Cross-platform programming.** Definition and properties of the components. Interface specification as a contract. The model links. Strategies for software integration. Design and assembly of components. Marshaling. The distributed architecture of component systems. Component-oriented design. The formal design methods and visual components. Object request brokers. Transaction processing monitors. Features Component Technologies: COM/DCOM/NET, CORBA, Java Beans.

**Technology protection.** Methods and devices of protection and security. Security, access and authentication. Models defense. Memory protection. Data encryption. The main directions of modern cryptography. Mechanisms and protocols in PKI Key Management Information System. The main types of attacks, the principles of cryptanalysis. Basics of cryptography. Algorithms of secret and public keys. Authentication protocol. Digital Signatures. Use passwords and access control mechanisms. Questions Security and Firewalls

**Technology of distributed systems and parallel algorithms.** How Grid and Web technologies. Soft Grid-of PHZ. Organize and manage resource allocation WSRF, GRAM, CONDOR. Grid and database. Management of Grid-environments. Security file system. Public key certificate. Grid-portal for user access to resources and applications Grid. The organization of parallel computing using existing technologies PVM, MPI. Parallel

computing methods. Building a parallel computer systems Conveyor matrix, multiprocessor. Construction of cluster systems. Support Tools Parallel Computing PVM, MPI. Models RPC and remote application of RMI

**Technology computer design.** Basic concepts and methodology for designing complex objects and systems. Systemic structural level computer-aided design of complex objects. Mathematical models of design objects. CAD and CALS-technologies. CASE-technologies. Analysis, verification and optimization of design solutions by means of CAD.

**Intelligent data analysis.** Methods of primary data processing. Methods Data Structures: visualization and automatic grouping of data. Correlation and regression analysis. Multiple regression analysis. Multiple linear regression model. Check the adequacy of model. Nonlinear parameter estimation. Cluster analysis. Hierarchical clustering and sectional. Clustering methods: the procedure Mc Kyn, mesh methods. Raster clustering objects. Linear discriminant analysis. Construction of canonical and classification functions. Trees decisions. Support vector machine, "nearest neighbor" Bayes. Multidimensional analysis groups. Statistical analysis of time series and forecasting. Classification objects in case of unknowns distributed data. Evaluation methods of classification errors. Search Methods template data. Methods, stages, tasks Data Mining. Implementation of Data Mining, OLAP and data warehousing in the DSS. Process, standards, tools, Data Mining.

## **2. Elective academic disciplines**

### ***2.1. Disciplines offered by University***

Annotations disciplines "Ukrainian for Professional Purposes ", "The history of Ukraine and ethnocultural ", "Foreign Language", "Philosophy", "Physical Training" see . Section 2.1.

**Legal culture of personality** Basic theory of law. Principles of Constitutional Law. Fundamentals of Justice and Law Enforcement in Ukraine. Basics of administrative, financial and criminal law. Fundamentals of civil, family, business, labor, environmental, agricultural, natural-resource and land rights.

**Safety and life** Acts population in emergency peacetime and wartime. Ways of population protection from damaging factors of accidents, natural disasters and modern weapons of mass destruction. Methods of forecasting of possible radiological, chemical, bacteriological, biological situation arising in case of disaster or accident. Sanitary norms and modes of work.

### ***2.2. Disciplines offered by students***

**Management.** The concept and nature of management. Development of management science. Basic theory of managerial decisions. Performance Management. Planning Organization. Organization as a management function. Motivation. Management control. Leadership. Communication in management.

**Economics and Business.** Business Economics. The general management functions and management techniques. Marketing: The marketing system in the enterprise, methods of market research, marketing planning. Strategic management: model, strategy, technology, strategic planning PEST. SWOT. BCG. SNW and others. Financial Management. Business planning: developing a business plan, sources of investment. Accounting and taxation burned. Management Accounting. Management. Prediction of the company. Marketing. Sales management and resources. Logistics. Budgeting and controlling. Management.



**Information technology.** Subject methods and objectives of discipline, the theoretical foundations of computer science, system software processes information, software tools work with structured documents, network technology, and the use of Internet in the economy. Fundamentals of Web-design, organization of computer security and information protection software work with databases and data warehouses, office basics of programming, expertise and training systems, the prospects of development of information technologies.

**Programming C#.** Object-oriented approach to programming. Platform. NET and its application to object-oriented approach to programming. Basic concepts of programming language C#. Development of elementary programs in the programming language C#. The semantics of the basic structures of the programming language C#. Basic concepts of Object-oriented approach: objects, classes and methods. Objects and classes. Theory of types and typing in .NET. Conception inheritance, encapsulation and its implementation in the language C#. The concept of polymorphism and its implementation in C#. Polymorphic methods. Advanced polymorphisms in the language C#. Advanced programming language C#.

**Algorithms and Data Structures.** The term "algorithm". Description of the algorithm. Data types and data structures. Abstract data types. ADT list, queue, stack, trees, graphs. Analysis of algorithms and algorithmic strategies. Sorting algorithms, merge, search. Fundamental algorithms of abstract data structures.

**Technical communication tools.** General information about the telecommunications system. Generalized system of digital communication systems. The message signals, interference and their mathematical models. Mathematical models circuits. Fundamentals of information theory. Methods and tools for coding messages. Transferring messages in digital system. Obstacles protection for modern telecommunications systems. Principles of multichannel communication and their implementation in analog and digital systems. The efficiency of telecommunications. Elements of design SEZ.

**Fundament of Java programming, language Java.** The main tools of language Java. AWT GUI language Java. Swing GUI language Java. Input output in Java. Internationalization applications in Java. Collections in Java. Working with database in Java. Programming of applications written in Java. Working with Internet protocols in Java. Network Services Java. Data processing on Web-server using Java.

**Programming mobile applications.** Programming for Android using the Android SDK; programming language Java, which will develop for other platforms (Core Java, Java EE, Blackberry, etc.); design, create and work with databases, especially the SQLite; placement app in Google Play;

**Intelligent systems.** Neural networks. Neural network adaptive resonance theory. Fuzzy sets and fuzzy neural network. Basic concepts of neural networks. The properties of the neural network training. Rosenblatt perceptron. Neural networks counter-proliferation.

**The theory of pattern recognition and classification in artificial intelligence systems.** Basic concepts of pattern recognition theory. The basic definition of science pattern recognition. Clustering. Bayesian approach. Not Bayesian problem. Nyman - Pearson. Minimax problem. Classification of recognition.

**Statistical methods, theory flow of events.** Basics of probability theory and statistical methods of information systems. Variation number and statistical distribution. Basic theory of estimation of unknown parameters of distributions. Statistical hypothesis. Checking hypotheses. Correlation theory of random variables. Elements of variance and regression analysis. Information queuing system. Elements of the theory of random processes. Stationary random process. Elements of queuing theory. ISMO flow of events. Mathematical introduction to the theory of Markov chains. Information Network of service.

### ***2.2.1. Specialization "Information Control Systems and Technologies"***

**Microprocessor management system.** Classification and application of microprocessor control systems. Architecture microprocessors. Using MPLAB environment for compiling and debugging programs. Programming microprocessors. Programming in assembler. Using the embedded microprocessor modules in control systems.

**Technology development ICS.** Definition and classification of information systems. Models of information systems. Basic concepts of information support of information systems. Simulation data. Models databases. Construction of information systems based on distributed databases. Review architectural complex information systems. Software Information Systems

**Modern management theory.** The subject of management theory. Structural and functional components of the control system. Transients and characteristics of the input-output. Model -driven systems. Manageability and observation linear systems. Routh - Hurwitz criteria, Mikhailov, Neykvist. Discrete and digital control system. Mathematical modeling of stochastic systems. Differentiation of random functions. The main criteria optimization. Method of variations. Mathematical modeling of fuzzy systems. Design of fuzzy logic -based algorithms. Development of data analysis by fuzzy clustering. Fuzzy Petri Nets.

### ***2.2.2. Specialization "Computer Ecological and Economic Monitoring"***

**Computer systems ecological and economic monitoring.** Architecture of monitoring system. Resources of computer system. Operating system at monitoring tools. Real Time Systems. The core of the operating system. Monolithic, layered and client-server architecture. Services of operating system. The system of priorities and scheduling algorithms. Memory management. The interaction between tasks. Industrial operating systems. The SmartDust concept. TinyOS operating system. Architecture of microprocessor system. The structure of the microprocessor and its programming model. Interrupts and their processing. Programming of interrupts. DOS and BIOS interrupts. Software interrupts. C language functions for interrupts programming. Low-level and high-level programming of systems. Hardware of monitoring systems. Information exchange at monitoring systems and its programming. Industrial interfaces of information exchange. Monitoring system sensors. Administration of the monitoring system. Programming of monitoring system interface. Creating a software system for monitoring tools.

**Technology development ICS.** Definition and classification of information systems. Models of information systems. Basic concepts of information support of information systems. Simulation data. Models databases. Construction of information systems based on distributed databases. Review architectural complex information systems. Software Information Systems.

**Industry Environmental Monitoring.** 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.

The task of the discipline studying is to master the mathematical and algorithmic foundations of intelligent information systems, existing and promising means of data analysis and acquiring the skills of their practical application for solving specific problems in the field of environmental monitoring.



**Bachelor**  
**in specialty "SOFTWARE ENGINEERING"**  
**field of knowledge " Information Technology"**

Form of Training:	Licensed number of persons:
– Full-time	50
– Part-time	50
Duration of Training	4 years
Credits	240 ECTS
Language of Teaching	Ukrainian
Qualification	Bachelor of Information Technology

**Concept of training**

Direction of " Software Engineering " provides students ownership algorithmic thinking, software engineering methods to implement software to meet the requirements for quality, reliability, production characteristics

**Practical training**

Practical training of students of the field of study is aimed at mastering the basic methods and techniques of information systems development.

**Proposed Topics for Bachelor themes**

1. Software monitoring system of ecological processes.
2. Design software learning management system.
3. Design pattern recognition software system for GIS.
4. The software of the automated process control system cultivation of agricultural crops.
5. Software distributed accounting system.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of graduates**

Graduates field of study " Software Engineering " can work: software engineer, administrator local and corporate networks, expert in the design and development of information and automated systems, artificial intelligence and expert systems, expert in Web- design, Business Intelligence engineer, etc.

## Bachelor's Program and Curriculum in Specialty " Software Engineering "

№	Name of Academic Discipline	semester	Number	
			hours	ECTS credits
1. STANDART ACADEMIC DISCIPLINES				
1.	Discrete structures	3	90	3
2.	Linear algebra and analytic geometry	2	90	3
3.	Mathematical analysis	1,2	210	7
4.	Probability theory	4	90	3
5.	Mathematical statistics	5	90	3
6.	Physics	1,2	150	5
7.	Algorithms and Data Structures	4	120	4
8.	The software requirements analysis software	3	120	4
9.	Computer Architecture	2	120	4
10.	Architecture and design Software	7,8	150	5
11.	Databases	3,4	150	5
12.	Security applications and data	7	120	4
13.	Group dynamics and communication	7	90	3
14.	Economy software	8	90	3
15.	Empirical Software Engineering Methods	8	120	4
16.	Computer discrete mathematics	3	120	4
17.	Design Software	6	120	4
18.	Human-Computer Interaction	4	90	3
19.	Project Management Software	7	120	4
20.	Modeling and analysis of the subject area	5	120	4
21.	Object-oriented programming	3	150	5
22.	Operating Systems	5	150	5
23.	Organization of computer Networks	6	150	5
24.	Basics of Software Engineering	1	90	3
25.	Bases of programming	1,2	150	5
26.	Technologies WEB programming	5,6	150	5
27.	Project practicum	7,8	120	4
28.	Professional Software Engineering Practice	8	120	4
29.	Software Quality and Testing	7	120	4
30.	Educational technology practice		300	10
31.	Pregraduation practice		270	9
Total for standard part			4320	144
2.ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1.	Ethnocultural	6	90	3
2.	Foreign Language	1-4	150	5
3.	History of Ukraine	1	90	3
4.	Legal culture of personality	8	90	3
5.	Ukrainian language (for professional purposes)	2	120	4
6.	Philosophy	4	120	4
7.	Physical education (due to free time student)	1-4	120	4
8.	Safety and bases of labor protection	6	90	3
9.	Information Technology	1,2	120	4
10.	Artificial Intelligence	3	90	3
Total (Disciplines offered by University)			1080	36
2.2. Disciplines offered by students				
1.	Logic	4	180	6

2.	Management	5	180	6
<b>2.2.1.Specialization "Applied Programming"</b>				
1.	Intellectual systems	5	180	6
2.	Cross-platform programming	5	180	6
3.	Methods of object-oriented design of software systems	8	180	6
4.	Software technology dot.net	7	180	6
5.	Programming microprocessors	7	180	6
6.	Programming of mobile devices	6	180	6
7.	Technologies distributed programming	8	180	6
8.	Technologies database programming	6	180	6
<b>2.2.1.Specialization "System Programming"</b>				
9.	Basics system programming	5	180	6
10.	Parallel programming	5	180	6
11.	The semantics of programming	8	180	6
12.	Operating system of mobile systems	7	180	6
13.	Logical programming	7	180	6
14.	Real time operating system	6	180	6
15.	Principles of multitasking systems	8	180	6
16.	Translators and compilers	6	180	6
<b>Total specialization</b>			<b>1440</b>	<b>48</b>
<b>Total (Disciplines offered by students)</b>			<b>360</b>	<b>12</b>
<b>Total for elective part</b>			<b>1800</b>	<b>60</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1.	Military training course		870	16
2.	Academic Practice		150	5
3.	Bachelor Thesis writing (Graduate thesis or Project)		120	4
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

### Annotation of disciplines in the curriculum

#### 1. Standard academic disciplines

**Discrete structures.** The simplest methods of proof. Elementary number theory. Computational complexity.

**Linear algebra and analytic geometry.** The coordinate system, straight and plane. Curves and surfaces of second order. Vectors, matrices, determinants. Systems of linear algebraic equations. Linear vector space.

**Mathematical analysis.** Functional dependence numeric sequence boundary and continuity functions. Differential calculus. Integral Calculus. Rows.

**Probability theory.** Basic concepts of probability theory. Models retest. Random variables and their numerical characteristics.

**Mathematical statistics.** Basics of mathematical statistics. Statistical estimates of population parameters. Statistical hypothesis testing. Elements of analysis of variance. Elements of the theory of correlation.

**Physics.** Classical mechanics and electrodynamics. Physical basics of computers and telecommunications.

**Algorithms and Data Structures.** Basic data structures: stacks, queues, linked lists, cash tables, trees, graphs. Basic computing algorithms: sorting, hash tables and algorithms exclusion conflicts binary tree search, presentation of graphs, and go in depth and in width. Recursion. Analysis algorithms.

**The software requirements analysis software.** The types of requirements, functional and non-functional attributes of quality. Specification and documentation requirements. Languages writing specifications. Basics of requirements engineering software. Matching requirements and risk management.

**Computer Architecture.** Digital logic. Submission of data. Organization of memory. Functional organization devices, ensuring their interaction. Multiprocessor Architecture. Modern architecture.

**Architecture and design Software.** Technologies software development. Structure and architecture of the software. Strategies and methods of designing software. Quality analysis and evaluation of software design. Notation and design support tools.

**Databases.** Information models and systems. Relational database. Languages queries to the database. Processing transactions. Distributed database.

**Security applications and data.** Principles of safety and protection in the software. Fundamentals of information security systems in the software.

**Group dynamics and communication.** Basics of work effectively with colleagues, acquaintance with the motivation of people, the concept of group dynamics. Practice extraction requirements, interviews, scripts, prototypes, "explanatory meeting" supervision. Strategy auscultation, persuasion and negotiation. Review written technical documentation to identify different kinds of problems. Creating a formal presentation of good quality. Principles of effective oral communication.

**Economy software.** Features of functioning entities at market conditions. Key indicators of enterprise resource potential and efficiency of its use. Business organization and management bases.

**Empirical Software Engineering Methods.** Basics of of descriptive statistics. Applying the principles of discrete probability IT.

**Computer discrete mathematics.** The sets, functions and relations. Boolean algebra. Logic statements. Predicate logic. Graphs and trees. Basics of combinatorics. Recurrent ratio.

**Design Software.** Basics of modeling. Models construction. The types of models. Plan your design. Languages construction. Integration. The quality of construction. Templates design.

**Human-Computer Interaction.** Psychological principles of human-machine interactions. Analysis, design and prototyping man-machine interface. Functional components and properties of man-machine interface. Utilities man-machine interface. Assessment of quality of man-machine interface.

**Project Management Software.** The processes of project management, software lifecycle Project Management. Managing deadline and the cost of the project. Human potential and communications. Quality management and project risks.

**Modeling and analysis of the subject area.** Design software-based domain model. Pattern design. Software development through testing. Language modeling domains.

**Object-oriented programming.** Object-oriented design. Encapsulation and hiding information. Distribution of conduct and implementation. Classes and subclasses. Inheritance (override dynamic linking). Polymorphism (polymorphism subtypes and inheritance). The hierarchy of classes. Classes of collections and iteration protocols. The internal representation of objects and table methods.

**Operating Systems.** Basics of operating systems. Parallelism (multitasking). Planning and scheduling processes. Organization of virtual memory. Managing devices.

**Organization of computer Networks.** Distributing computing. Basics of networking and telecommunications. Network Management. Principles of safety and protection in the software.

**Basics of Software Engineering.** Engineering software-based. Basics of modeling. Technologies software development. Basics of requirements engineering software. Written communication.

**Programming.** The basic design of programming. Algorithms and solving problems. Fundamental data structures. Recursion. Programming events.

**Technologies WEB programming.** The structure and principles WEB. Creating Web applications. Client and server scenarios.

**Project practicum.** The principles of a systematic approach to software development. Design templates and documentation requirements. Technologies software development. The processes of quality management software. Human potential and communications. Quality management and project risks.

**Professional Software Engineering Practice.** The concept of quality and culture of the software. The system of rules of ethics and professional conduct aesthetic code software engineer. The nature and role of software engineering standards. Social, legal, historical and professional issues and interests. The nature and role of professional societies.

**Software Quality and Testing.** Methods of tests. Automated testing tools. Quality standard software. The processes of quality management software. Terminology and basics of verification and certification software.

## **2. Elective academic disciplines**

### ***2.1. Disciplines offered by University***

Annotations disciplines "Ukrainian language (for professional purposes)", "History of Ukraine", "ethnocultural", "foreign language", "Philosophy", "Physical Education" see. Section 2.1.

**Legal culture of personality.** Basic concepts, terms and definitions. Subject, tasks and principles of law. Principles of Constitutional Law Ukraine. Principles of Civil Law of Ukraine. Basics of labor law in Ukraine.

**Safety and bases of labor protection.** Actions population in emergency situations in peacetime and wartime. Ways to protect people from the damaging factors of accidents, natural disasters and modern weapons of mass destruction. Methods of forecasting of possible radiological, chemical, bacteriological, biological situation arising in the event of a disaster or accident. Sanitary norms and modes of work. Basics of health and safety.

**Information Technology.** Information systems and technology. The main Resources Internet. Libraries and databases. Trends in the world of information technology. Review and comparative characteristics of existing Web-browsers. Characteristics of the existing search engines to use online resources.

**Artificial Intelligence.** The concept of artificial intelligence. The concept of intelligent system and intelligent problem. Methods submission intellectual problems and methods of finding solutions. Knowledge and knowledge representation model in SSHI. Semantic Grid SS: basic concepts, types, and how to describe the logical conclusion to the SS. Frames: basic concepts, structure frame. Frame system. Expert systems EC: purpose and principles of construction; generalized architecture; classes of problems that are solved by EC. Modern software and tools for creating SSHI: Visual Prolog. Allegro CLOS, CLIPS, JESS. Languages functional and logic programming.

## ***2.2. Disciplines offered by students***

**Logic.** The object, subject and method of the science of logic. Thought and language. Logic and Political Science. Basic forms and laws of thought. The basic logical laws.

**Management.** The essence, principles and functions of modern management. Management Tools. The organizational structure of public management. State management in the field of information industry. The activity of members of management.

### ***2.2.1. Specialization "Applied Programming"***

**Intellectual systems.** Modeling knowledge in intelligent systems. Cash and logical systems of knowledge bases. Experts, ontological and many agent system.

**Cross-platform programming.** Definition and properties of components. Interface specification as the contract. The model links. Strategy of integration software. Design and assembly of components. Marshaling. Distributed architecture component systems. Component-oriented design. Formal design methods and visual components. Brokers object requests. Monitors processing transactions. Features component technologies: COM / DCOM / NET, CORBA, Java Beans.

**Methods of object-oriented design of software systems.** Classes and objects. Concept OOP. Imitation. Charting packages, component placement, classes and objects. Templates and design patterns.

**Software technology dot.net.** Overview of the platform Microsoft .NET. Cross-language integration in .NET. Collections .NET. Remoting objects .NET (.NET-Remoting). Programming in C #.

**Programming microprocessors.** Programming real-time systems management tool as simple and complex systems using PCs and microcontroller technology. The composition of real-time systems. Types of operating systems real time. Parameters operating systems real time. Using interrupts with low-level programming. Use timers with low-level programming. Communications protocol RS-232. Programming serial data exchange. Using the built-in methods of system libraries Windows.



**Programming of mobile devices.** Programming for Android using the Android SDK; programming language Java, which will develop for other platforms (Core Java, Java EE, Blackberry, etc.); features SQLite; placing the app in Google Play.

**Technologies distributed programming.** Parallel computing using existing technologies PVM, MPI. Parallel computational methods. Construction of parallel computing systems conveyor, matrix, multiprocessor. Building cluster systems. Tools supporting parallel computing PVM, MPI. Models RPC RPC and remote application of RMI.

**Technologies database programming.** Languages databases. SQL programming as a panacea to access data in relational databases. T-SQL as a procedural programming language integrated with MS SQL Server. The standard ODBC and ADO. Using ADO-interface to access data by means of high-level programming.

### ***2.2.2. Specialization "System Programming"***

**Basics system programming.** This course deal with the classical models, methods and algorithms of system programming, gives a fundamentals of the theory, gives examples of programs. The main focus is on explaining how to use the knowledge gained in practice. The course is divided into lectures, including theoretical material on a low-level programming language and laboratory works on system programming. The theoretical foundations of system programming are studied in detail. The organization of operating systems is studied.

**Parallel programming.** Methods of parallel computation are proposed for solving a number of optimization problems, methods for organizing optimal parallel control and information processing processes, methods of dispatching and synchronization. The application of parallel programming methods in the development of GRID-technologies is discussed. The implementation of the language of the logical conclusion of PROLOG in the SPMD architecture is considered. The problem of optimization of information service by a network database is under investigation when it is turned into a multi-channel queuing system. Rotation of database segments provides multi-channel access and synchronization of access to them.

**The semantics of programming.** The semantics of programming - discipline that studies the formalization value structures of programming languages by building their formal mathematical models. As tools for building such models can be used by different means, such as mathematical logic,  $\lambda$ -calculus, set theory, category theory, model theory, universal algebra. Formalization of semantics of programming languages can be used to describe the language determining properties of language and for the purposes of formal verification software on this programming language. The course discusses operational, broadcasting and interpretive semantics.

**Operating systems of mobile systems.** The course is devoted to studying the architecture of mobile operating systems, features of the use for different mobile devices, and features of system and applied mobile software development.

**Logical programming.** The main aim of the course is to study the basis of logical programming with ProLog and Mercury. During the course students will learn the basis of

declarative programming, algebra of predicates and complete the achieved knowledges with practical tasks.

**Real time operating system.** Real Time Systems. Systems of hard and soft real time. Requirements for real time operating systems. The functions of the operating system kernel. Abstractions in the operating system. Versions of the kernels for real time operating system. Monolithic and layered architecture. Client-server architecture. Software interfaces. Services at real time operating system. The system priorities and scheduling algorithms. Memory management. The interaction between tasks. Timers. Input/output services. Interrupts and their processing. Programming of interrupts. DOS and BIOS interrupts. Software interrupts. Industrial operating systems. QNX operating system. RTLinux. The exchange of information in real time systems and its programming. Programming of interface of real time system. Creation of hardware-software real time complex.

**Principles of multitasking systems.** Software Requirements Governing calculators. Features of construction and programming of real-time systems. The concept of multitasking processes and threads. The formal description of system tasks that run on a single processor. Functions of the operating system software environment in real time. Types of scheduling performance problems. Static schedule without interruption. Dynamic schedule with interruptions (multitasking with squeezing). Curriculum quantized-parallel (multitasking without squeezing). Features of the calculation of schedules and building load calculator charts. Features and software mechanisms operating systems real time. Features of algorithmic and software implementation of different types of scheduling performance problems.

**Translators and compilers.** This course deal with the fundamental principles of translation: the compilation, the interpretation, the dynamic compilation. Deal with the basics of compilation, methods of syntactic and semantic analysis and optimization of object code. Deal with the basis of the interpretation - the process of reading and executing of the code, not in the machine, but in the high-level program.

**Bachelor**  
**in specialty «COMPUTER ENGINEERING»**  
**field of knowledge «Information Technology»**

Form of Training:	Licensed number of persons:
- Full-time	50
- Part-time	50
Duration of Training	4 years
Credits	240 ECTS
Language of Teaching	Ukrainian
Qualification	Bachelor of Computer Engineering

**The Concept of training**

The student training in «Computer Engineering» allows to graduates in programming and software to design and use the system and application software as a professional programmer, including the design and use of information systems, databases, computer aided design, interactive systems, embedded applications for specialized computer systems. In the field of computer hardware technology the student, training in «Computer Engineering» allows to graduates to design and develop specialized computer systems, controllers, adapters, local, global and corporate computer networks at the level of individual units and universal devices.

**Practical training**

Practical training of «Computer Engineering» students aimed at mastering the basic methods and techniques for developing of computer systems hardware and software.

**Proposed Topics for Bachelor theses**

1. The Development of specialized function-oriented computer system for solving specific problems in a particular subject area.
2. Designing of GIS hardware and software.
3. Development of system software of computer systems.
4. Development of hardware and software of information protection facilities in computer systems.
5. To Develop facilities of computer networks security improving.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of Graduates**

The Graduates «Computer engineering» can occupy a position the professionals of information technologies, programming, system administration, administration of computer local and corporate networks.

### Bachelor's program and Curriculum in Specialty «Computer Engineering»

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Higher mathematics	1,2	300	10
2	Physics	1,2	240	8
3	Programming	1,2	240	8
4	The theory of electric and magnetic circuits	2	150	5
5	Computer Logic	2,3	270	9
6	Algorithms and methods of computation	3	150	5
7	Discrete Mathematics	3	120	4
8	Computer electronics	3	120	4
9	The databases organization	3	150	5
10	Computer circuitry	3,4	240	8
11	Probability Theory and Mathematical Statistics	4	90	3
12	Software engineering	4	120	4
13	Ecology	8	90	3
14	Computer Architecture	4,5	270	9
15	Technology designing of computer systems	5	180	6
16	Parallel and distributed computing	5	120	4
17	System programming	5,6	240	8
18	Computer networks	6,7	270	9
19	Computer systems	5,6	210	7
20	Information protecting in computer systems	8	150	5
21	System software	6,7	210	7
22	Practical training	6	180	6
23	Preparation and defense of bachelor thesis	8	210	7
Total for standard part			4320	144
2.ELECTIVE ACADEMIC DISCIPLINES				
2.1.Disciplines offered by University				
1	History of Ukraine	1	90	3
2	Ethnoculturology	5	60	2
3	Ukrainian for Professional Purposes	1	60	2
4	Foreign Language	1,2	180	6
5	Physical Training	1-4	120	4
6	Philosophy	4	120	4
7	Labour and life safety	5	120	4
8	Legal culture of personality	3	90	3
9	Information technologies	1	240	8
Total Disciplines offered by University			1080	36
2.2. Disciplines offered by students				
Humanitarian and socio-economic training				
1	Economics	6	60	2
2	Political science	7	60	2
3	Logic	7	60	2
4	Management	2	180	6

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
Professional and Practical Training Disciplines				
Block 1				
1	System analysis	5	90	3
2	Digital Circuitry of Specialized Devices	6	90	3
3	Object-oriented programming	4	90	3
4	Specialized computers	6	90	3
5	Computer Graphics	7	90	3
6	Web technology and web design	4	90	3
7	Cross-platform programming	7	120	4
8	Computer technologies in agriculture	7	90	3
9	Hardware and software of GIS	7	120	4
10	Computer systems of agricultural production objects	6	90	3
11	Practical training	8	360	12
Block 2				
1	Decision Support Systems	5	90	3
2	Specialize Devices of Digital Circuits	6	90	3
3	Modern Programming Techniques	5	90	3
4	Microcontroller Systems	6	90	3
5	Hardware of Computer Graphics Systems	3	90	3
6	Network Information Technologies	7	90	3
7	Java Programing	7	120	4
8	Engineering and technologies in agriculture	8	90	3
9	Real Time GIS	7	120	4
10	Embedded systems of agricultural production objects	8	90	3
11	Practical training		360	12
	Total		1320	44
Specialization «Computer Systems and Networks»				
1	Microprocessor control systems	8	120	4
2	Mobile computer systems	8	120	4
3	Programming in modern operating systems environment	8	120	4
Specialization «Specialized Computer Systems»				
1	Real Time Microprocessor systems	8	120	4
2	Programing of Mobile Computer Systems	8	120	4
3	Development of Applications in modern OS	8	120	4
	Total		360	12
Total Disciplines offered by Students			1800	60
Total for elective part			2880	96
3. OTHER TYPES OF TRAINING				
1	Military training course		480	16
2	Academic Practice		360	12
3	Bachelor Thesis writing (Graduate thesis or Project)		120	4
Total for Specialty (without Military training course			7200	240

## Annotation of disciplines in the curriculum

### 1. Standard academic disciplines

**Higher mathematics.** Complex numbers. Elementary functions. Continuity of functions. Derivative and differential functions. The research of functions. Integrals. Functions of several variables. Extreme functions. Series. Differential Equations. Ordinary differential equations of the first order. Cauchy problem. Differential equations of higher order. Systems of linear differential equations. Linear algebra. Vector algebra. Analytic geometry. Systems of linear algebraic equations. Linear spaces and linear operators.

**Physics.** Mechanics. Kinematics and Dynamics. Models of classical mechanics. Work and energy. Basic theory of relativity. Electricity and magnetism. The electric field. Direct electric current. Alternating electric current. The magnetic field. Electromagnetic induction. Maxwell's equations. Optics. Wave optics. Interference. Diffraction. Polarization. The dispersion. Quantum physics. Photons. The model of the atom. Schrödinger equation. Elements of solid state physics.

**Programming.** Programming Fundamentals. Programming Paradigms. Algorithms and problem solving. The concept of the algorithm and typical algorithmic programming structure. Fundamental data structures. Structured programming. Procedure-oriented programming. Syntactic and semantic structures of programming languages. Recursion. Paradigms of object-oriented programming. Object-oriented technologies. Algorithms and Data Structures. Programming of dynamic data structures. Exceptions handling.

**The Theory of electric and magnetic circuits (electrical engineering).** The theory of linear DC circuits. Basic laws of electrical circuits. Methods of the electrical circuit analysis. Linear circuits of sinusoidal current. Properties and analysis of AC networks. Resonant effects and frequency characteristics. Basic theory of four-pole. Three-phase networks. Non-sinusoidal transients in linear electric circuits. Electric circuits of non-sinusoidal periodic current. Transients in linear electric circuits. Electric circuits with distributed parameters and elements of nonlinear circuits theory. Transients in circuits with distributed parameters. General characteristics of nonlinear circuits and methods of its calculation.

**Computer Logic.** Basic terms and definitions of computer logic. Information basics of computer technology. Algebra of switching functions. Methods of switching functions minimization. Synthesis of combinational circuits in different element bases. Basic theory of digital machines with memory. Synthesis of digital machines with memory. Analysis of logic and dynamic processes in digital machines. Typical digital circuits of computers. Introduction to the theory of number system notation. Forms of representation and coding of numbers in computers. Fixed-point and floating-point operations. Synthesis of operating machines.

**Algorithms and methods of computation.** Algorithms analysis. Algorithmic strategies. Construction of algorithms. Problems of linear algebra. Methods of computation. Tasks of nonlinear algebra. The solution of differential equations. Solution of integral equations. Problems in mathematical physics. Methods of approximation functions. Optimization methods.

**Discrete Mathematics.** Set theory and relations. Algebra. The basic operations of algebra of sets. Graph theory. The theory of functions. Combinatorics. Trees. Coding theory.

**Computer electronics.** Basics of analogue and pulse electronic devices. Basic principles and definition of computer electronics. Diodes. Bipolar and unipolar transistors. Linear and differential amplifiers. Devices of digital electronics. Devices based on flip-flops.



Generating devices. Semiconductor memory devices. Logic devices with programmable characteristics.

**The databases organization.** Information systems and database management systems. The concept of information and information systems. Classification of information systems. Architecture of Information System. Database functions. Data models. The hierarchical and network data models. The relational model and its characteristics. The structure of a relational data. Database tables. Potential, primary and external keys. The integrity of the relational data. Operations of the relational algebra and relational calculus. Query language for relational databases. SQL Concepts. Requests for data reading. Aggregate functions. Queries for grouping. Complex queries. Requests for updates. The concept of data indexation. Methods of indexes organization. The internal database programming language. Client/server database technologies. Architecture of client/server database. The concept of open systems. Open communication with the database. ODBC. Access technologies Access BDE, ADO, ADO.Net. JDBC. Transactions. Administration. ACID properties of transactions. Problems of parallelism. Transactions isolation levels. Transaction management in programming languages. Distributed database. The logical database design. Physical database design. Hardware and software components. Database security.

**Computer circuitry.** Circuitry of standard units and blocks. Fundamentals of computer circuitry. Typical units and blocks of digital technologies. Flip-flops. Registers. Counters. Binary adders. Decoders. Multiplexers. Encoders. Memory devices. RAM. Register and buffer memory. ROM. Circuitry of arithmetic devices. Varieties of adders. Arithmetic devices structures for different purposes. Varieties and implementation of information channels. Circuits based on LSI and VLSI systems. Circuitry of FPGA.

**Probability Theory and Mathematical Statistics.** Probability theory and mathematical statistics. Random events and its analysis. Random variables. Systems of random variables functions. Mathematical statistics and processing of measurement results. Verification of statistical hypotheses. Applied methods of mathematical statistics. Random processes. Fundamentals of information theory.

**Software engineering.** Basic concepts and problems of software development. The life cycle of software; international standards of software lifecycle. Models and methodologies of software development. Analysis, specification, verification and validation of software requirements. Designing of software architecture. Patterns of software design. Designing of the user interface. Methodology of modeling SADT, IDEF, DFD, ELM, OOAD. Modeling languages. Behavioral modeling. Diagrams of states, activity, interaction, sequence, time. Structural modeling. Functional modeling. Simulation of data streams. Means of simulation automation. The tasks of project management. Risk management software project. Control and monitoring of the project state. Organization of the project team. The roles and areas of responsibility team members. The quality of the software. Verification and validation of software. Software Testing. The Code optimization and refactoring. Aspects of software productivity. Integrated software development environment. Project Management System. Documents version and architectural features control system. Automation tools of projects assembly. Tools of testing process automation.

**Ecology.** The laws of ecology. Ecologic factors and its influence on the environment. Areas of environmental protection and environmental management. Methods to reduce the impact of environmental factors.

**Computer Architecture.** Von Neumann architecture. Hierarchical principle of hardware and software construction of computers. Instruction sets. The structure and formats of instructions and stages of its execution. Program control organization of program execution. Purpose, classification and characteristics of processors. Architecture of arithmetic-logic devices with distributed and concentrated logic. Features of processor architecture to processing of the numbers with fixed and floating point. Functions and general organization of control in computers. Types of control (centralized, distributed, synchronous, asynchronous, combined control). Architecture of control units with hard-wired logic and flexible logic. Multi-level memory of computers (scratch-pad, operational, buffer (cache) memory. The organization of pages and segments in virtual memory. Interaction of all memory levels. Multiprogram modes of processor functioning. Protect of

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memory sections. Modes of processor functioning with external devices. The program data sharing, interrupt processing, organizing of direct memory access. Architecture of data input-output facilities. Features Architecture of microprocessor sets of various purpose (single-chip microprocessor, sectional microprocessors, microcontrollers). Areas of microprocessor systems architecture development.

**Technology designing of computer systems.** The methodology of computer systems designing. General characteristics of computer systems CAD. System design. Operational design. Functional design. The technical design. Systems of design of computer systems.

**Parallel and distributed computing.** Parallel and distributed computing foundations. The structures of parallel and distributed computer systems. Parallel algorithms: representation, construction and analysis. Parallel algorithms for linear algebra problems. The processes (streams). Process state. Interaction processes through shared variables. The task of synchronization and mutual exclusions and facilities of its solution: atomic variables, semaphores, mutex, events, critical sections, monitors. The interaction of processes by link messages. Primitives Send/Receive. Rendezvous mechanism. Models of parallel computation. Parallel programming languages. Library of parallel programming. Examples: MPI, PVM, OpenMP, Win32. Programming for multicore systems. Distributed computing. Client-server model. Sockets. Remote methods. Programming for cluster systems.

**System programming.** Assembler language as efficient programming facility. Architecture and instruction set of basic processor. Programming of subroutines in assembler language. Technologies of development of multimodule system programs. Usage of software libraries. Processing of data structures in system programs. Programming of tables and graphs processing in system programs. Programming of conversions in programs of translation. Basic concepts of the theory of grammars. Basic programming of lexical and syntactic analysis. Types of semantic processing in translators. Construction of elements of control programs.

**Computer networks.** Introduction to network technologies. Generalized structure of computer networks. Basic network topology. System network architecture. Open systems interconnection basic reference model. Communication systems of computer networks. Local networks. Global networks. Wireless and mobile networks. Protocols. Network operating systems. System and application software of networks. Planning of computer networks. Control of computer networks. Administration of computer networks. Security of computer networks.

**Computer systems.** Subject, tasks and methods of the theory of computer system (CS). Computational processes in CS and their models. Planning of work in the CS. CS metrics: productivity, efficiency, reliability. Structural organization of CS of different generations. Classification of parallel CS. CS with fixed communication system. CS with reconfigurable communication system. Memory organization in CS. Organization of data input-output in CS. Organization of data transfer in CS. Computer systems of SISD class. Computer systems of SIMD class: matrix, vector, associative. Computer systems of MISD class: conveyor computer systems. CS of MIMD class: multiprocessor, multicomputer systems with heterogeneous access to RAM, cluster systems, GRID systems. Computer systems with non-conventional architectures. CS interfaces. Basic concepts of fault-tolerant CS. Structural aspects of fault-tolerant CS construction.

**Information protecting in computer systems.** Fundamentals of information security in computer systems. Conceptual models of information security systems organization in CS. Access control and distinction of access rights to information. Symmetric schemes, keys and encryption systems. Asymmetric schemes, keys and encryption systems. Authenticity confirmation of messages and users. Standards and criteria for the certification of information security facilities.

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**System software.** System software architecture. Structural organization and method of resource control in computer systems (CS). Fundamentals of construction and design of system software in CS. Methodology of development of dynamic and static task scheduling and dispatching in CS. The structures and functions of the OS. Task control. Memory control. Data control. IO devices control. Interrupts. Processes control. Modern operating systems. Resource control in distributed systems, GRID and CLOUD systems.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations for disciplines «Ukrainian for Professional Purposes», «History of Ukraine», «History of Ukrainian Culture», «Foreign Language», «Philosophy», «Physical Training», «Legal culture of personality» see. Section 2.1 «General provisions».

**Information technology.** Subject, methods and objectives of discipline, the theoretical foundations of computer science, system software of information processes, program tools for structured documents creating, network technologies, the use of Internet in the economics. Web-design fundamentals, computer security and information protection organization, software work with databases and repository software, office programming fundamentals, expert and training systems, the prospects of information technologies development.

**Labour and life safety.** Population acts in emergencies at peacetime and wartime. Ways of population protection from damaging factors of accidents, natural disasters and modern weapons of mass destruction. Methods of forecasting of possible radiological, chemical, bacteriological, biological situation arising in case of disaster or accident. Sanitary and hygienic norms and modes of work. Principles of labour safety and health.

### **2.2. Disciplines offered by students**

**Economics.** Milestones of economic thought. Problems and patterns of functioning and development of social production. Property relations. Economic systems. Commodity-money relations. Fundamentals of supply and demand in a market economy. A rational consumer choice. Operation of firms, markets, resources and market structures. Patterns of functioning of the national economy, monetary and financial systems. Formation of macroeconomic equilibrium and forms of macroeconomic instability. Fundamentals of State Regulation of Economy and International Economic Relations.

**Logic.** Basic laws of correct thinking. The concepts, judgments, reasoning's. Basic laws of proper thinking. Logic laws. The law of identity, the law of contradiction. Law solely of the third. Proof. Refutation. Structure of refutation. Rules of refutation. Types of rebuttal.

**Political science.** Subject of the discipline. Political power. Political regime. Political system. The state as the basic institutions of the political system Political parties and associations. Civil Society. Humankind rights. Political culture. Political Ideology. The political elite. Political leadership. Ethnic Relations. Ethnic Policy. International relations and foreign policy.

## **Block 1 of Professional and Practical Training Disciplines**

**System analysis.** System models creation of problem situations. Concepts and patterns of system analysis. Methods of system analysis. System analysis of Business process computerization objects. Disclosure of the indeterminacies in system analysis

problems. Objectives and methods of system analysis multifactorial risks. System management of complex objects. Standards of system solutions documentation.

**Digital Circuitry of Specialized Devices.** TTL elements equivalent circuits. Delay devices. Devices for pulse formation based on TTL elements. Transient analysis in specialized devices. Integrated circuits of monostable multivibrators. Multivibrators. The different types of multivibrators. Converters of signal levels between the different logic element systems. Level converters between TTL signals and signals of serial interfaces RS232C, RS485, «current loop» interface.

**Object-oriented programming.** Paradigms of object-oriented programming (OOP). The concept of programming technologies. The concept of objects, classes, and their relationships. Fundamentals of object-oriented programming language. Data Abstraction and Encapsulation. Constructors, destructors of classes. Static constant class members, friendly functions and classes. Composition and collection facilities. Simple and multiple inheritance. Implementation of polymorphism. Patterns of functions and classes. Handling of exceptional situations. Classes of input-output streams. The standard classes libraries of program developer environment. Development of graphical user interfaces. Basic event-driven programming.

**Specialized computers.** Specialized computer systems (SCS) architecture. SCS design. Technologies of SCS design. Features of SCS structures. Specialized structures of microprocessors with control features. Instruction set of basic processor. Memory organization. Software organization of SCS. Organization of communication with object. The subsystem of digital and analogue data input-output. Software testing technologies of SCS.

**Computer Graphics.** Raster and vector graphics. Modern graphics systems. Use of graphics API. Fundamental techniques in graphics. Two-dimensional and three-dimensional clipping. Algorithms for lines generating. Coordinate transformations. Basic theory of transformations. Euclidean and affine transformations. Simple color models. The parallel and central projection. Approximation of curves and surfaces by splines. Fractal curves and surfaces. Polygonal representation of three-dimensional objects. Visualization and Computer Animation.

**Web technology and web design.** The structure and principles of the Web. Introduction to client-server technology Web. Protocol HTTP. Client scripts and applications. Server Web-applications. JavaScripts. Languages of Scripting Development Perl, PHP, JSP. Developing of CGI-applications on Perl, PHP, JSP. Basics of Web-applications using PHP. Interaction interfaces of Web-applications with the data bases. Web services and their description languages. Fundamentals of XML. Web content development. CMS/CMF. Technology AJAX. Web Design.

**Cross-platform programming.** Definition and properties of the components. Interface specification as a contract. The model links. Strategies for software integration. Design and assembly of components. Marshaling. The distributed architecture of component systems. Component-oriented design. The formal design methods and visual components. Object request brokers. Transaction processing monitors. Features of Component Technologies: COM/DCOM/NET, CORBA, Java Beans. The main tools of language Java. Graphic interface AWT of language Java. Graphic interface Swing of language Java. Internationalization of applications in Java. Collections in Java. Working with database in Java. Programming of Java applications. Working with Internet protocols in Java. Network Services in Java.

**Computer technologies in agriculture.** Computer information technologies in agriculture. Architecture of computer systems in agriculture. Organization of communication with object. Input-output systems of digital and analogue information. Communication channel organization. Computer control systems in agriculture.



**Hardware and software of GIS.** Organization and operation principles of geoinformational systems (GIS). Architecture of GIS. The data in geoinformational systems. Data representation. Hardware of GIS. The organization of real time GIS. Objects properties in GIS. Mathematical models of information channels. Application of GIS. Software of GIS. Data analysis in GIS. Mapmetric operations in GIS. Spatial analysis in GIS. Applied aspects of geo-data analysis.

**Computer systems of agricultural production objects.** Informational computer systems in agriculture. Definition and classification of informational systems. Hardware, Software and Information Support of computer systems in agriculture. Embedded computer systems and its architecture. Automated control system in agriculture.

## **Block 2 of Professional and Practical Training Disciplines**

**Decision Support Systems.** General aspects of decision support systems. Binary relations and decision-making. Attitude and expert evaluation. Models and methods of decision-making under conditions of multi criteria. Decision making by analytical hierarchy. The concept of utility and rational choice. Models and methods of decision-making under fuzzy information, uncertainty and risk. Models and methods of multi personal decisions. Game theory, strategic and statistical game. Psycholinguistic aspects of decision-making.

**Specialize Devices of Digital Circuits.** Systems of information communication in computer systems. Specialized devices for information communication on the physical level. Monostable devices. Pulse forming devices. Communication channels. Signal digitization. Organization of signal converting. Serial data interfaces. Signal converting for information communication by a serial interface. Information communication by current. Calculation of the dynamic parameters and characteristics of specialized devices.

**Modern Programming Techniques.** The concepts of the programming technologies. The basic technologies of object-oriented programming. CASE-technologies. Applications of CASE-technologies. Software design tools. Object-oriented visual programming. Classes of data.

**Microcontroller Systems.** Microcontroller (MC) architecture. Instruction set of basic MC. Features of memory organization. Addressing methods. Events processing. General organization of interruptions system. Timers of MC. Real time systems. The subsystem of analogue data input-output. Indication subsystem. Serial port. Synchronous mode of data transferring/receiving. Features of industrial MC networks. Features of the MC software testing. MC emulators. Arithmetic operations programming. Bit operations programming. Development of MC systems.

**Hardware of Computer Graphics Systems.** Architecture of computer graphics (CG) systems. Mathematical foundations of computer graphics. The basic operations of computer graphics systems. Methods of object approximation. Geometrical, topological and power parameters. The task of image synthesis. Software Development for two-dimensional visualization processes. The structure and processing algorithms for visualization of three-dimensional objects. Development and simulation of specialized processors to implementation of CG algorithms. The development of specialized hardware blocks for CG algorithms implementation. Modern graphics cards.

**Network Information Technologies.** Computer networks standards. Personal, local and global networks standards. Analysis methods of computer networks state. Computer networks software. Operating systems resources for the analysis of computer networks. Network programming.

**Java Programing.** Structure of programming system Java. Java-machine. Basic data types and operations with it. Instruction syntax and semantics. Characteristics of basic constructions. Means of object-oriented programming language Java. Classes,

methods, properties. Syntax of class definition. Class attributes. Class fields. Creation of a particular class object. Abstract classes. Inheritance and interfaces. Syntax of interface. The concept and application of packages. The concept of exceptional situation in Java and its processing. Standard packages of Java programming system. Java - technologies.

**Engineering and technologies in agriculture.** Information technologies in agriculture. Automated computer systems in agriculture. Hardware, software and information services of computer system in agriculture. Development of communication device with the object. Computers and peripherals for support of technological processes in agriculture. The extension system.

**Real Time GIS.** Geoinformational real-time system (RT GIS). RT GIS architecture. System, functional and technical design of GIS. Methods and algorithms of routing in GIS. The concept of real time. Hardware design, analysis and development of the main RT GIS components. Development of input-output subsystems. Information converters in computer systems. Software development of RT computer systems. Information services organization of RT GIS. Processes scheduling. Simulation and optimization of information processes.

**Embedded systems of agricultural production objects.** Embedded computer systems in agricultural production. Architecture of embedded systems and features of its use. Automated control systems in agriculture. Information processes scheduling in embedded systems. Development of embedded systems hardware and software.

### **2.2.1.Specialization «Computer Systems and Networks»**

**Microprocessor control systems.** Specialized structures of microprocessors with control features. Monitoring of information flows features in microprocessor control systems in real time. Structures of microprocessor control systems environments in interaction with information flows features. Circuitry and parameters calculations of information interaction of microprocessors with control objects. Development features of particular structural components of information channels in microprocessor control systems.

**Mobile computer systems.** Architecture of Mobile Computer Systems (CS). Hardware of mobile CS. Software of mobile CS. Programming of mobile CS. Programming in Android using the Android SDK. Databases, features SQLite.

**Programming in modern operating systems environment.** Platform. NET and its application. Basic concepts of programming language C#. The semantics of the C# basic structures. Objects and classes. The concept of polymorphism and its implementation in C#. Polymorphic methods. Advanced capabilities of programming language C#.

Characteristic properties of UNIX systems. The typical structure of the OS. Structure and functions of kernel components. Instruction interpreter. The syntax and semantics of the command interpreter language. The structure of the program (script). Creating a physical file system. Virtual file systems. System files containing information on the mounted file systems. Physical and logical models of file system. Categories of OS users. The algorithms of checking the access rights to system resources. User accounts. File types and their features as file system objects. Program functions of creation and access to files. The concept of process. Process creating. The process life cycle. Process priorities. Demons as special processes. The need for interaction between different processes. Information interaction and control interaction. Processes sync. Trends of UNIX systems.



### 2.2.2. Specialization «Specialized Computer Systems»

**Real Time Microprocessor systems.** Hardware of microprocessor systems. Basic classes and characteristics of modern microprocessors. Architecture of microprocessors. Composition of basic microprocessor families. Software of microprocessor systems: structural and architectural features. Programming of microprocessor systems. Operating systems and standard software packages.

**Programing of Mobile Computer Systems.** Technologic platforms for implementation of mobile systems. Modern mobile OS. Fundamentals of mobile applications design and development. Data storage and processing in mobile applications. Information protection in mobile systems. Characteristics of mobile applications. Creating of applications based on Java ME.

**Development of Applications in modern OS.** Operating system Windows. Interaction of OS with the user programs. The structure of the application based on WinAPI. Application window. Processing of major program communications. Child windows of control. Development of user interfaces. Programming of the basic tasks of user applications development. Contexts of devices. Assignment of contexts, types of contexts. Main features and attributes of the contexts. Bitmap images. Keyboard programming. Focus keypad and messages. The use of child windows for application programming of modern user interface Using of multimedia timers. Development of dialogue system. Modal and non-modal dialogs.

**2.16. HUMANITARIAN PEDAGOGICAL FACULTY**

**Dean** – Doctor of philological sciences, Professor **Vasyl' Shynkaruk**

Phone.: (044) 527 80 83,

E-mail: pedagogy\_dean@twin.nubip.edu.ua

Location: educational building № 3, room. 101

The faculty organizes and coordinates the educational process of bachelors in the following specialties:

**231 Social work**

Graduating department:

Social pedagogy and informational technologies in education

Phone.: (044) 527-83-57, E-mail: socpedagogy@ukr.net

Head of the department – Doctor of pedagogical sciences, Associate professor Lesya Viktorova

**035 Philology**

Graduating departments:

Foreign philology and translation

Phone.: (044) 527-88-46, E-mail: kifip@ukr.net

Head of the department – Doctor of pedagogical sciences, Professor Svitlana Amelina

Romano - Germanic languages and translation

Phone.: (044) 527-85-95, E-mail: krgm@ukr.net

Head of the department – Doctor of pedagogical sciences, Professor Oleksandr Malykhin

**291 International Relations, Public Communications and Regional Studies**

Graduating department:

History and Political Science

Tel.: (044) 527-81-16 E-mail: kaf\_ist\_pol@ukr.net

Head of Department - Doctor of Historical Sciences, Professor Sergey Bilan

**015 Professional Education (technology of production and processing of agricultural products)**

Graduating department:

Pedagogy

Phone.: (044) 527-83-55, E-mail: pedagogic@ukr.net

Head of the department – Doctor of pedagogical sciences, Professor Sopivnyk Ruslan Vasyl'ovych

**Bachelor  
in specialty “SOCIAL WORK”  
field of knowledge “Social work”**

Form of education:	Licensed number of persons:
– full-time	50
– extra-mural	50
Duration of studying:	4 years
- Full-time	
- extra-mural	5 years
Credits	240 ECTS
Language of teaching	Ukrainian, English
Qualification of graduates	Bachelor Social work

### **Conception of Training**

Training of social teacher is caused by the need of our state in specialists which perform a job directed on social-pedagogical help, support, defense and rehabilitation of all categories of children and youth in rural area. Professional activity of this specialist is supposed to be directed on solving of production questions in directions of learning social-pedagogical problems concerning of socialization of fosterling children and youth, organization of their public defense, performing of consulting in social-pedagogical questions, organization of their leisure time, giving help in the process of education to persons which have direct relationship to it.

### **Practical training**

Practical training is performed according to the schedule of educational process directly at the licensed bases of practice, between them: regional center of social service for families, children and youth; departments which work with children of the street; educational-healthcare complexes; territorial centers of social servicing; pre-school educational institutions; general schools of I-III levels; centers of social-psychological rehabilitation.

**Academic rights of Graduates** - can continue their education in specialties and Educational programs training Masters the names of which are given in table. 1.2 section 1.3 this Directory.

### **Employment of Graduates**

Social teacher may work at the system of educational institutions, houses and centers of children's education, cultural centers and schools of fine arts, social-educational services and clubs, children's and public organizations, services of keeping, department of juvenile services, center of social defense and help, employment centers and job connections.

## Bachelor's Program and Curriculum in Specialty "Social work"

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Social anthropology	5	120	4,0
2	Principles of Medicine	1	90	3,0
3	Computer technology in the social work	2	90	3,0
4	Social hygiene and health organization	3	120	4,0
5	Development of world civilization	1	120	4,0
6	General and social psychology	1	150	5,0
7	Principles of general and social pedagogics		150	5,0
8	Individual in the contemporary society	3	90	3,0
9	Psychology of the personality	4	90	3,0
10	Development and pedagogic psychology	4	90	3,0
11	Principles of social service	1	120	4,0
12	Social work with families, children and adults	3	90	3,0
13	Basics of the specialty	1	90	3,0
14	Volunteers training	7	120	4,0
15	Management of social work	7	120	4,0
16	Social work theory	3	120	4,0
17	Social work with different groups of clients	6	150	5,0
18	Principles of social ethics and communication	2	150	5
19	Keeping documents	3	120	4,0
20	Social work case study	5	120	4,0
21	Information resources support of the social and pedagogic activity	5	120	4,0
22	Social insurance and pension support	6	90	3,0
23	Legal aspects of the social work	6	90	3,0
24	Information and communication technology	8	120	4,0
25	Social and communication technologies	5	180	6,0
26	Social work at the institutions of penitentiary system	8	210	7,0
27	Social family support	8	90	3,0
28	Person socialization	6	180	6,0
29	Principles of consulting	7	120	4,0
30	Psychology of management in the social work	7	90	3,0
31	Social gerontology	6	90	3,0
32	The system of social service providing and management	6	120	4,0
Total for standard part			3810	127
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Ukrainian by the professional competence	1	120	4,0
2	History of Ukraine statehood	1	90	3,0
3	Ethno, family and life culture	2	90	3,0
4	Foreign language	1-4	150	5,0
5	Life and labour safety	5	120	4,0
6	Personality legal literacy and culture	3	90	3,0
7	Physical education	1-4	120	4,0
8	Philosophy	4	120	4,0
Total (Disciplines offered by University)			780	26
2.2. Disciplines offered by students				
1	Civil and family law	4-5	210	7,0
	Law science			
2	Sociology	4	90	3,0
	Culture study			
3	Social ecology	5	90	3,0
	Safety ecology			
4	Principles of research	1	90	3,0
	Deontology			
5	Social work in the sphere of leisure	2	120	4,0
	Principles of scenic work and performance			
6	Inclusive education	8	90	3,0
	Ethno psychology			

**CURRICULA AND PROGRAMS OF BACHELOR DEGREE**

7	Polish	2-3	90	3,0
	Comparative pedagogics			
8	Latin	2	90	3,0
	Statistics and community			
9	Social communication training	2	90	3,0
	Social and pedagogic work at education establishments			
10	Work of social tutor, mentor	7	120	4,0
	Conflict management study			
11	Principles of social work	6	150	5,0
	Social projects modeling			
12	Principles of study of mental defects and physical handicaps	7	90	3,0
	Principles of specific pedagogics and psychology			
13	Team building training	4	90	3,0
	Social testing			
14	Leadership study	4	90	3,0
	Social work methods			
15	Preventive pedagogics	5	90	3,0
	Social support providing			
16	Sex education, upbringing and practice theory for the family life	3	90	3,0
	Ethics and psychology of the family life			
17	History of social work	6	90	3,0
	Theory and practical training of the rehabilitation therapy			
18	Theory and history of social education	7	90	3,0
	Principles of occupational guidance			
19	Rehabilitation therapy for people with special need	8	120	4,0
	Group and individual therapy			
20	Advertising and information technology	3	90	3,0
	Principles of public relation in the social work			
Total (Disciplines offered by students)			2070	69
Total for elective part			6660	222
3. OTHER TYPES OF TRAINING				
1	Military training		870	
2	Culture and education study		315	
3	Professional internship		90	3,0
4	Volunteer internship		90	3,0
5	Professional internship		150	5,0
6	Work experience internship		180	6,0
Final examination (State final test)			30	1,0
Total (It doesn't include military training )			7200	240

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Social anthropology** deals with the subject of cross-cultural diversity of people life experience at different social groups, societies and cultures.

**Principles of Medicine.** Primary and first aid medical care under the circumstances of life-threatening situation occurred in case of splanchnopathy, infectious diseases, penetrating injuries, emergency and accidents.

**Computer technology in the social work.** Information technology development and evolution. Feature and classification of the computer and computer equipment. Architecture and computer functional design. Techniques of the practical software engineering in the graphic operating system. Slide ware and software process, editing and performance of presentation. The algorithmic computer processes. Techniques of the

practical software engineering, editing and formatting of electronic spreadsheets, diagrams, graphs and texts. Interface attachment of user and Internet network.

**Social hygiene and healthcare organization.** The culture of healthcare; spiritual, psychological, mental and somatic aspects of improvement, keeping and saving of health; training of the body; threatening and improvement of somatic and mental health; balanced intake dietary; labour and leisure activity. Common factors for improvement of people health, the positive and negative impact of biological, social, economic, ecological and other methods in order to improve public health, develop policies and strategies of the national health system. Social problems in medicine and health safety is a "bridge" between the medicine and sociology.

**Development of world civilizations.** History research of humankind and international relations; the theory and hypotheses of civilizations. Civilization as objective reality and as a subject and object of research: global civilization; hyperactive cycles of world civilizations. Similar and different group civilizations. Principles of differentiation and separation of local civilizations. Influence factors on essence and civilization peculiarities.

**General and social psychology.** Mental current conception; fundamental research and acknowledgement of psychology to natural mental phenomenon; mental activity; emotional and volition ultraism; individual and typological personality characteristics; peculiarity of small groups and communities maintenance; evolution of interpersonal relationship.

**Principles of general and social pedagogics.** Personality development, social environment as an object and subject of social and pedagogic influence, social and pedagogic problems of certain categories of people, socio pedagogic of socio-cultural sphere, the history and perspectives of social education and upbringing.

**Individual in the contemporary society.** Origin of the human life in the terms of mythological and religious outlook, contemporary cosmology. Evolutional hypothesis; sequence; heritage.

**Psychology of personality.** Research of people mental characteristic as a component of definite system of the mental capability, which has appropriate structure, exterior and inner system characterized by the natural and social environment connection.

**Development and pedagogic psychology.** Developmental and pedagogic psychology in Ukraine. Psychology of adolescent and gerontology. Principles and problems of pedagogic psychology in terms of personality, activity, behavior approaches in the general context of current tendency to the development of education in Ukraine.

**Principles of social services.** Legal and regulatory acts and international agreement of Ukraine to social services. The complex of legal, economic, psychological, educational, medical, rehabilitation and other measures directed on the specific social groups or individuals who are in difficult life situations need outside help. Social services provided by entities. Principles for the social services providing. The types and methods of the social services support.

**Social work with families, children and youth.** The basic principles of social work with families, children and youth. The main goal and objectives implementation effectiveness of social work with families, children and youth. The appropriate forms and methods of work with families, children and youth. Main directions of social work with families, children and youth.

**Introduction into specialty.** Social work as a science, its object, subject, structure, methods of cognition, function, its place among other social sciences, its development basic stages; society concept as a whole, social development; culture as a mechanism to regulate society. A human being in a social context.



**Volunteers training and organizational work.** Organized and managed process of people's participation in state authorities' activities in the various non-state organizations and institutions of the third sector. Stages of volunteers training. The volunteers' motivation levels.

**Management of social work.** The social work management functions, principles and regularities. Human resources, employment motivational theories. Management of the project activities. Leadership styles in a given situation, conflict resolution methods. Organization and coordination of social work with different clients categories.

**Theory of social work.** Historical reconstruction of the social work institutionalization as a holistic process. Stages of social work development in world history. Approaches to the description of reality in the social sciences and social work theories. The main components of the social knowledge structure theory. Social work as multilevel theory, paradigm theory, integrative theory. Social work in the context of modern scientific paradigms. The main discourses in social work. The social functioning concepts in the social work theory. Crisis and task-centered theories in social work.

**Social work with different client groups.** The social work establishment with different client groups. Social work with pre-conscription and conscription youth, military personnel and their families, low-income populations. Social assistance and support for persons with disabilities. The system of social assistance to the elderly and lonely. Social work with persons who have alcohol and drug problems. Social work with individuals engaged in sex work. Features of social work with HIV-infected and AIDS patients. Organization of work with people without a certain residence. Social work with groups of clients who have experienced domestic violence. Work with victims of "trafficking". The specifics of social work with people of suicidal behaviour. The social support to persons returning from places of imprisonment. Social work with families who have children with special needs. Social work with youth and young family. Social work with children left without parental care. Social work with street children.

**Principles of professional ethics and communication in social work.** The essence and functions of morality. Categories of morality. The moral problems of human activity and human relations. The subject of ethics. The main categories of ethics. Aesthetic consciousness: the structure and basic concepts.

**Keeping documents.** The official and business style of the Ukrainian language, functional and stylistic standards in writing. Current requirements to the documents preparation and paperwork. Classification of business documents. The rules of presentation and logical construction of the document text. Registration, basic details of the organization, administration, documentation on personnel, reference information, economic and contractual documents and accounting and financial ones. Complicated spelling in the documents: writing titles, agencies, organizations, departments, geographical names, surnames etc. The practical tasks of writing and editing documents, determining their classifications, the location of their details in the correct sequence, filling out forms, translation from Russian into Ukrainian typical spoken phrases, clichés.

**Workshop on social work.** Professional social worker position, the specificity of social work and its humanistic orientation, the experience of overcoming problematic situations in the individual work with the client, experience with supervisor, the main directions of social work through trainings.

**Information resources for social and pedagogical activities.** The methods and means of modern domestic and world information resources.

**Social insurance and pensions.** Legislation on social insurance. The history of the social insurance emergence and development in Ukraine. Mandatory state social insurance. Types of compulsory state social insurance. Voluntary social insurance. The system of rights, obligations and guarantees, which provides social protection. Legal documents, legislation on pensions.

**Legal basis of social work.** Basic theory of law and state. Principles of Constitutional Law. Basics of civil law. Fundamentals of labor law. Fundamentals of Environmental Law. Basic Law on social protection. Fundamentals of marital and family law. Fundamentals housing law. Basics of financial law. Fundamentals of Administrative Law. Basics of Criminal Law.

**Information and communication technologies in social and educational activities.** The development of computer and communication infrastructure. The current state and prospects for development and application of information technology, features of the modern software use, the organization works with Web-technologies; the specific use of modern software. The problem of the ICT use in professional activities.

**Social and communication technologies.** Social communication: the starting line. Concepts and types of social and communication technologies of the social space modeling. Cognitive schemes in the specialist social space.

**Social work in penitentiary institutions.** The historical backgrounds of the penitentiary formation and development. The penitentiary conceptual foundations in the social worker activity. Psychological and educational activities of the bodies executing punishment. The activities of social workers in the penitentiary sector. Basic methods and techniques of social work in the penitentiary system. Social and psychological methods of influence on group behavior. Interactive forms of social work as the central idea of the prison policy. Psychoanalytic methods and techniques of penitentiary psychology. Diagnosis of informal interaction and the individual place in the subculture. Features of social work with minors who have returned from places of imprisonment.

**Social family support.** State policy on social protection of family, motherhood and childhood, as well as its regulatory support, kinds, types, structure, functions of families, the causes and consequences of the modern family problems, models of social work with different family types, methods, forms, basic principles and order of social support for families.

**Socialization of an individual.** The socialization process. Stages of socialization. The origins of the modern socialization concept. Bodies of socialization. Mechanisms of the individual involvement in social processes.

**Principles of consultancy.** The concept of consultancy. The purpose and objectives of the consultative work. The nature and purpose of consultancy, the category of professionalism and culture consultancy. Management consulting. Modeling of the management consulting process. Counselling techniques. The sociologist scope of activities as a consultant.

**Psychology management in social work.** The individual in the organization. Control over the person emotional state. Mental state and performance. Organizational skills. Knowledge, skills, management skills and personal interaction. Methods of the individual study. Reference applying. Psychological regularities of the group development. Mechanisms of group influence. Social and psychological characteristics of the staff. Communication in the organization, role interaction. The psychology leading influence and labour discipline. Psychological barriers to innovations, innovations motivation. Psychological basis of management functions. Psychological aspects of information management and decision-making process. Typical mistakes.

**Social gerontology.** Social Gerontology as a science. Elderly person as the subject of age-related changes. Social factors that determine the elderly person status in society. The quality of life of elderly people. Problems of socialization, social and psychological adaptation of the elderly people.

**The system of organization and management of social services.** Forms and methods of the organization formation; the functions of social services, the legal framework of social services, their relation with state and public organizations. The nature

and purpose of management consulting, types of consulting organizations. Information support of management; management personnel in the social sphere.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of disciplines «History of Ukrainian statehood» «Ethnic and cultural studies», «Philosophy», «Ukrainian language for professional purposes», «Foreign language», «Physical training», «Safety of labour and life», «The Legal culture of the person», see section 2.1.

**Philosophy.** Main directions, trends and schools in the history of Philosophy. The philosophical understanding of the world. Human understanding of objective and subjective reality. The main content of cognitive activity. A practical way of human existence. The purpose and value of human activity. Forms and methods of scientific cognition. The philosophical doctrine on development. The laws of dialectics. Typology of philosophical systems. The Philosophy of human being, consciousness, cognition and language. The Philosophy of society, economy, law, culture, science and history. Ecophilosophy. The Philosophy of technology, religion, morality, art. Axiology. Modeling of philosophical problems. Global issues of the day.

### **2.2. Disciplines offered by students**

**Civil and family law.** The concept of civil law of Ukraine, its subject and methods of legal regulation. Sources of Civil Law of Ukraine. Trends of development of civil legislation of Ukraine. The concept, classification, content and the grounds for the emergence and termination of civil legal relations. Subjects and objects of civil legal relations, their types. Features and procedures for the exercise and protection of civil rights and duties. Concepts and types of transactions.

**Law Science.** Theory of State and Law. General provisions of Administrative law as a branch of law. Civil law as a branch of law. General provisions of Contract law. Fulfillment of obligations and liability for their violation. Certain types of contracts. The concepts, sources and subjects of Labor law of Ukraine, wages, working hours and rest periods. Labor disputes and their resolution. Liability. Family law. Social security and social insurance legislation of Ukraine. Civil cases in courts of general jurisdiction. Criminal Law of Ukraine as a branch of law.

**Sociology.** Sociology as a science of society. The history of sociology. Formation and the main stages of historical development. A sociological theory of society. Personality in the system of social relations, Deviant behavior and social control. Ethnosociology. Sociology of family and marriage. Sociology of mass communications. Sociological research organizing and conducting.

**Cultural studies.** Cultural studies as a science. The cultural space. Art in the system of spiritual culture of the society. Culture and politics. Cultural scenarios of activity. Historical types of culture. Cross-cultural communication. Verbal and non-verbal communication.

**Social ecology.** The causes of the social ecology and the need to spread social and environmental knowledge. The theoretical basis of social ecology. The interaction of nature and society in their historical development. Nature and social existence of human being. The biosphere as a field of interaction between society and nature. Demographic problems of the world. Global problems associated with environmental pollution. Human resources and the labour market. Technological aspects of interaction between society

and nature. Environmental emergencies. Modeling and forecasting of social and environmental processes. Environmental awareness and culture. Social and ecological education. The problem of the system future “society – nature” in the theories of social development. Development prospects of the world's population and countries of different types. The problem of streamlining and harmonizing the system. Social and environmental policy. Strategy and tactics of the life conservation and development on Earth.

**Environmental safety.** Groups of environmental hazard. Types of environmental hazard. Classes of environmental hazard. Species and subspecies of man-made environmental hazard. Environmental crises and their classification. The causes of the global ecological crisis and its characteristics. The main features of the ecosystems crisis. Possible ways of overcoming the global environmental crisis. The environmental situation. Natural disasters. Anthropogenic factors of adverse environmental situations. Environmental emergencies. The main directions of Ukraine's state policy in the field of environmental safety. The priorities of Ukraine's state policy in the field of environmental safety. Territorial aspects of environmental hazard. International aspects of environmental safety. International cooperation. Individual environmental safety.

**Principles of scientific research.** Science and scientific thinking. The ability to determine the direction of scientific results in solving problems and implementing science functions. The main categories of science. The ability to formulate and justify a scientific hypothesis. Scientific research. The ability to conduct scientific research. The technology of working with scientific literature. The ability to analyze scientific publications. System approach and system analysis. The ability to conduct systematic analysis of the scientific research domain. The method of working with concepts. The ability to formulate concepts definitions of the researched domain. The organization of students research work. The ability to organize effectively the research activities.

**Deontology.** The history of the deontology concept. Deontology in the modern world. Deontological aspects of scientific activity. Historical and contemporary understanding of the basic categories of ethics and aesthetics. The issue of human aesthetic, aesthetic consciousness and ethical culture. Role of ethics in human life and society. The specificity of the aesthetic in all areas, the value of moral education and aesthetic activities of humanization and harmonization of the world. The general principles of ethical and aesthetic culture, its history and modernity, cultural values of the modern world, the process of formation and implementation mechanism. The theory and practice of aesthetic and ethical education.

**Social work in the field of entertainment.** Structure and functions of leisure time, meaningful content of entertainment. Theory and practice of leisure. Organization in the field of entertainment.

**Principles of screenwriting.** The specifics, types, forms, genres of theater art and its functions. The technology of scripts` writing. Organization and management of a team, director's activities and performing skills in social and educational work.

**Principles of inclusive education.** Basic principles and prerequisites of inclusive education. International experience of organization of inclusive education. The current normative and legal base of Ukraine governing that regulates the organization of inclusive education. Realities and prospects of introduction of inclusive education in Ukraine. Support of the educational process in inclusive education. Educational infrastructure requirements and availability of inclusive education. Adaptation and modification of the educational process. The principles, methods and techniques of working with children with visual impairments in terms of inclusive education .Correctional and developmental work and inclusive education of a child with visual impairment. Teaching support of children with visual impairments. The fundamentals of cooperation in inclusive educational institution.



**Ethno psychology.** Ethno psychological originality of people who belong to different ethnic groups. The formation of motives and actions of people settling inter-ethnic relations.

**The Polish language.** Orthoepy, phonetics, spelling, grammar - a system of inflection, syntax structure; training in the aspect of dialogue and monologue speech. The specifics of Polish traditions and culture.

**Comparative pedagogy.** General principles of comparative pedagogy. International cooperation in education. Features of pre-school education in different countries. Features of school, higher education and adult education in different countries. Factors and strategies of education reform.

**Latin.** Formation of knowledge on the basics of Latin. Formation of translation skills of Latin texts and usage of Latin terminology in training, research and production activities.

**Statistics and society.** The object and purpose of social statistics. Society as a social system. The population as an object of social statistics. The statistics living standards. Statistics of housing, housing, and communal services. The statistics of environment. The statistics of health services and education. The statistics of information. The statistics of culture, art and leisure. The statistics of social safety net.

**Training of social communication.** Specific features and basic training paradigm of social communication. The participants of training. General roles of a leader. Management styles of a group. Personality characteristic of a leader. The rules of the group.

**Social and educational work in educational institutions.** Legal basis of education, the structure of the educational sector in Ukraine. The social objectives of educational and socio-psychological institutions. Government normative and legal acts in the sphere of the office administration of socio-pedagogical practice. The basic methodical requirements of taking passport of social pedagogy in different types of schools. Basic categories and concepts of the course, its theoretical and methodological foundations. Professional tasks, duties and job description of social pedagogue in different types of schools. Educational features of the organization and planning of social and educational activities of preventive work in social institutions.

**Technologies of social tutor.** The role of the social tutor in society, the social significance of his activities in the implementation of inclusive education. The content of the basic technologies developed by modern socio-pedagogical and psychological science; practice with disabled children; methods of social tutor with disabled children.

**Conflict.** Conflict situation and conflict. Objective and subjective reasons of conflict. Types of conflict. The model of a conflict. The theory of intervention. The power relations in the organizations. The discipline as an instrument of preventing the conflict. The analysis of a conflict. Structural and personal methods of conflict management. The styles of behavior in a particular conflict situation. The methods of conflict resolution. Negotiations.

**Technologies of social work.** Basic social technology and socio-pedagogical work. Features of implementation of pedagogical and psychological methods in socio-pedagogical work with different groups of customers. At the core of the course is the concept of the socio-pedagogical approach; realization of creative potential of a person, his/her abilities and traits; accelerating efforts of customers (individuals, groups, communities) to solve their own problems.

**Modeling of social projects.** Setting goals, objectives and results of social project selection. Theoretical foundation activities. Planning of certain types of activities. Determination of the resources that make scientific support during the implementation of social projects. Determination of the strategy and planning of scientific support. Data collection methods. Methods of evaluation as part of a scientific maintenance. Efficiency criteria of social projects. Evaluation methods and sources of information; evaluation of economic efficiency; monitoring of social projects.

**Principles of pathology and pathopsychology.** The disorders of consciousness and identity. The principles of pathopsychological examination. The violation of attention, sensation, perception. Memory impairment. Violation of thinking. Emotional and willful violation. Neurotic disorders. Endogenous psychoses. Reactive psychosis. Mental deficiency. Violation of mental development.

**Principles of special pedagogy and psychology.** The systems for special education services. Special secondary schools for children requiring correction of psychophysical development. Basic concepts of special education. Features of different categories of individuals with mental and physical disabilities and manning educational institutions for them. The Ukrainian legal framework of modern special education.

**Training of group cohesion.** Features of psychological training as a form and method of assisting the individual and the group. The classification of training methods. Basic requirements for organizing and conducting psychological training. Ethical aspects of psychological training; procedure development program of training the course and individual training exercises; providing of feedback features in the group. Planning of training groups taking into account the characteristics of the target audience, the real conditions of training and the level of their own competence.

**Social diagnosis.** Goals, objectives diagnosis as social science discipline and technology of social and educational work. The social diagnosis. The requirements of the professional-level of social diagnostician. Methods of social diagnosis.

**Leadership.** The problem of leadership in the public sphere. Leadership theories. Professional qualities of a manager; organizational and psychological characteristics of his/her activities. The power and influence as tools of leadership. Leadership as a group process. The image of the leader. The development of individual leadership potential. Public speaking leader. The organization and control of management decisions; the system of responsibility.

**Methods of social work.** Methodological and methodical features methods of social and educational activities. The forms, methods and techniques of social and educational activities of social services. The methods of social forecasting and planning. Methods of introducing social innovation in practice. Modeling social and educational processes. Methods of social statistics in social work.

**Preventive pedagogy.** Instruments, forms and methods of preventive education aimed at the development and organization of certain activities due to the inclusion in educational activities; the prevention of delinquent behavior among children and youth.

**Organization of social security.** Legal regulation of social security. History and development of social security. The principles, forms, methods, patterns of social security. Estimation of social security.

**Sexual education and training for family life.** The essence of the problem and model of sexual education. Theoretical analysis of the content of sexual education of young people. Models of sexual education. Features of sexual development of students and preparation for family life. The development of educational activities with the sexual education of students and preparation them for family life.

**Ethics and psychology of family life.** Basic concepts and evolution of marriage and family. Socio-psychological model of marriage and family. Premarital period. The problem of love and marriage. The problems of young families. Factors of success and satisfaction with marriage and family life. The influence of family on the development of the child. Destructive trends in marriage and family. Fundamentals of diagnosis and correction of family relationships.

**The history of social work.** The origin and development of social work from ancient times to the eighteenth century. Social work in the nineteenth and early twentieth century. Features of social work in the twentieth century. Organization of social work at present stage.



**Theory and practice of rehabilitation.** The theoretical basis for social and psychological rehabilitation. Variations and classification of mental development. Content rehabilitation of people with disabilities. The rehabilitation features of children who are in difficult life circumstances. Work with street children and homeless adolescents in socio-psychological rehabilitation. The main directions of socio-psychological work with HIV-infected and AIDS patients. Rehabilitation potential of the individual. Rehabilitation and psychological diagnosis. The basic approach of the implementation of social and psychological rehabilitation of fighters of anti-terrorist operations. Regularities of social and educational rehabilitation of refugees, migrants. Psychosocial rehabilitation of people returning from prison.

**Theory and history of social education.** Development of the theory and practice of social education from the earliest times to the present.

**Principles of career guidance.** Development of vocational guidance, direction of career guidance, career guidance as a system of interrelated components, organizational structure management of career guidance.

**Rehabilitation work of a social worker with disabled people.** Legal basis of social protection of people with disabilities; public and private institutions and organizations; forms and methods of social work with people with disabilities. International aspects of the legal protection of disabled people.

**Social therapy of individual and group's problems.** Social therapy is a complex technology of social work. The goals and objectives of social therapy; its place in a number of social technologies. Social therapy as "treatment" of social diseases. The basic models of psychotherapy, as a method of treatment; as a method of manipulation; as a method that drives the learning process of the individual; as complex effects that occur in the interaction between people.

**Advertising and information technology.** Main directions, principles of design, manufacturing, deployment and operation of social advertising as a form of communication.

**Principles of Public Relations in social work.** The essence, principles, legal, ethical principles of public relations (PR) as the sphere of professional activity, organizational and psychological conditions of their effectiveness, role in the functioning of the company (organization). Basic techniques of Pseudo Technology of PR (as "black PR") and the possibility to counteract them.

**Bachelor  
in specialty "PHILOLOGY"  
field of knowledge "Philology"**

Form of study:	Licensed number of persons:
– full-time	50
Learning time: full-time	4 years
Credits	240 ECTS
Language of training	Ukrainian , English, German
Qualification of graduates	Bachelor of Linguistics, English teacher ( German ) language

**Conception of training**

Training in "Philology (Translation)" are stipulated by requirements in the translation of scientific and technical literature and documentation agrobiological, engineering and technology, forestry, ecological, research in product quality and safety, agribusiness, agricultural economics and so on.

**Practical training**

Practical training is carried out according to the schedule of the educational process directly to certified practices bases, including: Ukrainian Research Institute of productivity agriculture, commodity exchange "Kiev agroindustrial exchange", Department of Internal Policy administrative-territorial organization and information management executive office Khmelnytsky Regional Council , Ukrainian Institute examination of plant varieties, LLC "Fund Environmental (Green) Investments" Cultural Center "Cambridge University Press" enterprise with foreign capital PIC "Orsi", LLC "Idex-production" Private Enterprise "Antario M".

**Academic rights of Graduates** - can continue their education in specialties and Educational programs training Masters the names of which are given in table. 1.2 section 1.3 this Directory.

**Employment of Graduates**

Specialist of philology is able to translate scientific and technical (agricultural) and business literature, realize consultations deal with translation, can work as a translator at organizations of industrialists and businessmen, professional and social organizations, agencies print. Also a graduate can work as a teacher of foreign languages at secondary schools.

## Bachelor's Program and Curriculum in Specialty "Philology"

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Fundamentals of Applied Linguistics ( computer processing Translation )	1	90	3,0
2	Introduction to Translation	1-2	120	4,0
3	Latin language	1	90	3,0
4	Introduction to linguistics	2	90	3,0
5	Modern Ukrainian literature	1	90	3,0
6	Contemporary Ukrainian Literature	1	90	3,0
7	Aspect translation agricultural literature	4	120	4,0
8	Practical course of basic foreign language	1-4	1770	59,0
9	The stylistics of the basic foreign language	3-4	90	3,0
10	Comparative lexicology of basic foreign and Ukrainian language	3	90	3,0
11	Comparative Grammar of the main foreign and Ukrainian languages	3	90	3,0
12	The practice of translation and interpretation	2-4	450	15,0
13	History of Foreign Literature	1	90	3,0
14	Grammar in Practice (Basic Language)	1-3	300	10,0
15	History of the Basic Foreign Language	3	90	3,0
16	Scientific and technical translation	4	90	3,0
17	Linguistic study in English speaking countries	3	90	3,0
18	Business communication and correspondence translation	4	90	3,0
19	Комп'ютерна лексикографія і переклад	2	90	3,0
20	Psychology	3	90	3,0
21	Practical Stylistics of the Ukrainian language and communication skills	3	90	3,0
22	Special course on the principles of branch glossary development	4	90	3,0
23	Ukrainian language for translators ( translation editing )	3	90	3,0
Total for standard part			4290	143
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukraine	1	90	3,0
2	Philosophy and logic	1-2	90	3,0
3	Modern Ukrainian language	1	90	3,0
4	Етнокультурологія	1	90	3,0
5	Legal culture of personality	4	90	3,0
6	Pedagogics	3	90	3,0
7	Labour and life safety	2	90	3,0
8	Training theory and methodics	3	90	3,0
9	Methodics of the foreign languages training	4	90	3,0
10	Physical training	1-2	240	8,0
Total (Disciplines offered by University)			810	27
2.2. Disciplines offered by students				
1	Religion Sciences	1	90	3,0
	Foreign experience: Global thinking training			
	Technologies, globalization and culture			
2	International Protocol and Etiquette	1-2	90	3,0
3	Informational technology	4	120	4,0
	The principles of economic theory			
	The principles of agricultural production			
	The principles of management			
	World farming economics			
4	Politics	4	90	3,0

	Second foreign language practical course and translation	1-4	1320	44,0
6	Symantec and stylistic problems in branches' texts translation	4	90	3
	Cycle of natural specialties	4	30	1,0
	Cycle of technical specialties	4	30	1,0
	Cycle of economical specialties	4	30	1,0
5	Vital questions of terminology	8	90	3,0
<b>Total for Specialization</b>			<b>810</b>	<b>60</b>
<b>Total (Disciplines offered by students)</b>			<b>1620</b>	<b>87</b>
<b>Total for elective part</b>			<b>...</b>	<b>...</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training course		675	
2	Культурно-просвітницька підготовка		315	
3	Academic Practice		90	3
4	Production Practice		180	6
<b>State Attestation</b>			<b>30</b>	<b>1</b>
<b>Total for Specialty (without Military training course)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Fundamentals of Applied Linguistics (computer translation).** Structure peculiarities and technical characteristics of modern personal computers and other devices, their application to conduct linguistic research and translation.

**Introduction to translation.** Translator's activity; the history about foundation and development of theory about translation in Ukraine and outside the country; theory and classification of translation; lexical, grammar and syntaxes transformations; stylistic characteristics of idioms, proverbs and sayings, slangs, verb phrases, and word expressions.

**Latin language.** Mastering the Latin language knowledge, as well as skills needed to translate Latin texts and using Latin terminology in training, scientific and production activity.

**Introduction to linguistics.** General questions taking into consideration modern status of linguistics: general information about language and linguistics, nature and essence of language, its origin, regularities of its development and functioning on different historical stages, origin and development of writing, genealogical and typological classification of languages, structural levels and language units etc.

**Contemporary Ukrainian Literature.** Literary process phenomena at the end of XIX-th – and early XX-th centuries; the most important historical and literature processes; the Ukrainian prominent literary representatives' creative works.

**Aspect translation agricultural literature.** Theoretical grounds of agrarian texts translation; adequate reflection of various terminology characterized agrarian literature, mastering translating skills.

**Practical course of basic foreign language.** Mastering phonetic knowledge, vocabulary, grammar in practice; development of reading and audio skills; oral speech (communication) and writing.

**The stylistics of the basic foreign language.** Essentiality of language stylistics, communicative and texts stylistics, functioning of language units in language system; functioning styles and its characteristics, criteria, methods of analysis and texts' interpretation.

**Comparative lexicology of basic foreign and Ukrainian language.** Theoretical bases of lexicology and lexicography: practical application of the language units in communication; lexical skills and habits mastering.

**Comparative Grammar of the main foreign and Ukrainian languages.** Foreign and the Ukrainian languages typological peculiarities; grammar construction in compared languages; fixation of similar attributes and distinctions in the systems of grammar categories in various parts of language, and syntactic units.

**The practice of translation and interpretation.** Theoretical and practical course of oral and writing translation; translator's transformations; non -equivalent lexica; the types of semantic distinctions; contextual meaning of lexical units; the types of semantic correspondence; factors of style.

**History of Foreign Literature.** Analysis and interpretation of art works in accordance with historical division.

**Grammar in Practice (Basic Language).** The study of grammar system of foreign language, formation of skills in recognition, understanding and use of grammar forms in oral and written communication.

**History of the basis foreign language.** Processes dealing with language formation and development and its structure; its historical characteristics and attributes; similarity with other languages of certain language group; its specific peculiarities.

**Scientific and technical translation.** Solution of grammar, lexica, terminological and genre - stylistic tasks; translation of certain science and technique phenomena.

**Linguistic study of English speaking countries.** Language units that reflect national peculiarities of a country, formation of communicative students' competency in intercultural communications due to appropriate perception of language of an interlocutor and original texts.

**Business communication and correspondence translation.** Basic lexica and grammar peculiarities of business communication and correspondence style and means of their recreation in translated texts; genre business documents classification.

**Computer lexicography and translation** is designed to introduce students to the current status of lexicography and illustrate connection between computer lexicography and translation. The course involves mastering basic concepts of computer lexicography; study of types, kinds and structure of electronic dictionaries; study of using and creating electronic dictionaries.

**Psychology.** General psychological problems; the peculiarities of psyche development and formation in phyto- and ontogenesis; psyche process; state of mind and person peculiarities.

**Practical stylistic of the Ukrainian language and communicative culture.** Theoretical basis of stylistics, actual problems of modern science; stylistic standards of the Ukrainian language.

**Special course of branch glossaries composition.** Theoretical grounds of branch glossaries composition; organization of their composition.

**Ukrainian language for translators (redaction and wording).** Introduction basic terms and definitions to students needed for redaction and texts' wording; further mastering skills and habits concerning redaction of a translated text.

## **2. Elective Academic disciplines**

### ***2.1. Disciplines offered by University***

**History of Ukraine.** The discipline envisages deep mastering and understanding the history of origin and formation of Ukrainian people and Ukrainian statehood, consolidation of national originality, interpretation of political activity of classes and social

groups in Ukraine at some stages of historical development. The overall aim of the course is to train highly qualified specialists of agro industrial complex on the principles of the processes of higher school humanization, integration of professional, social and humanitarian training, improvement of the content of the course structure, application of the achievements of world and national conceptions, universal values.

**Philosophy and logic.** The course provides the system of knowledge in such branches of philosophy as ontology, gnoseology, social philosophy, historical types of philosophy that explain the essence of relations “a human being – the world” in its main demonstration. The phenomenon of religion, its origin, the main religious concepts, the history and present situations of tribal, early and late national religions, the main principles of religious doctrine and cult of the most influential religions in the world. Method of logics, the main forms and laws of thinking, prerequisites of the origin of current logics, the division of classical logics, typology and analysis of formal and logical theories within the logics of dictum and the logics of predicates.

**Modern Ukrainian language.** The objective of the discipline is the improvement of the level of general language training, communicative competencies of students, practical mastering in the principles of stylistics of Ukrainian language that will provide professional communication at proper language level. The discipline is aimed at generalization and systematization of the knowledge in Ukrainian language, to form abilities and skills for optimal language behavior in professional sphere.

**Ethic culturology.** Culture, methodology of studying of cultural phenomena, typology of cultures, comparative analysis of cultures, culture evolution, development of Ukrainian culture. Culture of family communication, holding business meetings, debates, negotiations, dealing with conflicts, housekeeping, planning of family budget.

**Legal culture of personality.** The discipline forms legal culture in the process of legal education of a personality, conceptual apparatus by studying theoretical and methodological aspects of juridical disciplines. The image of conceptual legal thinking, its style and deontological purposes, intuition of justice and legality of the decisions that will be made by a specialist during his professional activity are formed in the process of obtaining legal knowledge.

**Pedagogics.** Training theory and its practical organization are introduced (till didactic); education and school management.

**Labour and life safety.** Employment relationship, patterns of organization and functioning of labor relations, contracts, compliance with labor legislation, international legal regulation of labor. A person is considered as an object that needs to be protected in the environment, peculiarities of the human body, the influence on him natural environment (climate, atmosphere, hydrosphere, electromagnetic radiation).

**Training theory and methodics.** Theoretical and methodic grounds dealing with organization of training process; training method structure; the structure of educational information content; training organization.

**Methodics of the foreign languages training.** Purpose, content and principles of foreign languages training; methodics, techniques, technologies and forms of training; planning of foreign language training process; development of language and speech competence in accordance with requirements and standards.

**Physical training.** The aim of the discipline is the formation of physical culture of junior specialist and the ability to realize it in social and professional training and in family. The objectives of the discipline are the improvement of students' health and the development of physical abilities that correspond to the professional activity of a future specialist.



## **2.2. Disciplines offered by students**

**Religion science.** Religion phenomena, its foundation, the main religious conceptions, the history and modern status of national religions; the basic principles of religious culture of the most influential world religions.

**International protocol and etiquette.** The main tendencies in modern international communication, international protocol and etiquette tendencies, diplomatic and international correspondence.

**Foreign experience: global thinking training.** Studies the peculiarities of general tendencies of global educational networks development and use of their resources to practice them in the system of Ukrainian education in future.

**Technologies, globalization and culture.** On the basis of theoretical material to discover essence of globalization processes and their cultural component, to study historical influence on culture formation and development, positive and negative manifestations of global transformations in cultural environment of the world.

**Information technologies in translation projects.** Translation activity using computer-aided translation (CAT systems), development of group interaction in the implementation of translation projects using SDL Trados.

**Politics.** Theoretical and methodological problems of political knowledge; ideas of prominent foreign and Ukrainian thinkers about politics; place and role of political phenomena in the system of political and state authority relationship; political principals.

**The principles of economic theory.** Studies system statements and peculiarities which reflect modern economic science achievements and farming practice results. More attention is given to discovering of interconnection of economic theory and law, economy and policy, that affect labour structure and its content.

**The principles of agricultural production.** The study of agricultural production organization investigates economic aspects of its development. It generalizes the practice of agricultural management and work out the ways of its effective further development.

**The principles of management.** Studies theoretical and organizational principles of management and running organizations, understanding of essence of organization and interconnection of its internal elements and outside influence, understanding of management methods system, motivation and control realization, organization of co-operation and power, making decisions in management, information technologies in management, leaders and leadership, management styles, management efficiency.

**World farming economics.** Studies importance of farming and peculiarities of its development in modern world.

**Second foreign language practical course and translation.** Mastering phonetic, lexica, and practical grammar knowledge, as well as skills dealing with audio, reading, oral and written communication.

**Symantec and stylistic problems in branches texts and translation.** The system of theoretical knowledge and adequate translation of the language units (words, expressions, idiomatic expressions, free word combinations possessing specific structure; sentences, texts); introducing semantic and stylistic problems dealing with translation of various branch texts, such as follows: natural sciences, technical, economic and humanitarian specialties.

**Vital questions of terminology.** Studies the history of terminology formation as independent science and its modern structure, methodological principles of terminology on the basis of the Ukrainian language, general linguistic analysis of speciality terms, character of interconnection and co-ordination of national and international in terminology formation process, normalization problems, terminology standardization, analysis of terminology formation history, lexical, semantic and word building processes in this system..

**Bachelor**  
**in specialty "INTERNATIONAL RELATIONS PUBLIC COMMUNICATION AND**  
**REGIONAL STUDIES»**  
**field of knowledge "INTERNATIONAL RELATIONS"**

Form of education:	Licensed amount:
– full-time	25 people
– external	
Training period: full-time form	4 years
External form	5 years
Credits	240 ECTS
Teaching language	Ukrainian, English
Qualification of graduates	expert on international relations

### **Concept of training**

Training in the field of international relations, public communications and Regional Studies is a response to a notable request of government and businesses, and therefore society for highly qualified professionals in the context of setting up, development and moving to the new level of partnership and communication between different in structure and functionality subjects of international relations and law. Planned by curriculum systematic mastery of a number of professional and operational knowledge and skills will allow specialists in international relations navigate well in the socio-political, economic and cultural movements and events specific to the different level and scales of relations and cooperation between the subjects of international relations, perform their duties as the professionals.

### **Practical training**

Practical training is carried out according to the schedule of the educational process directly in certified practical institutions, including: trade representations and other representative organizations of Ukraine abroad; foreign states representations and international organizations in Ukraine; Ukraine-foreign joint stock, public and private enterprises; public organizations which have close contacts with foreign countries; structural units of Cabinet of Ministers of Ukraine; Ministry of Foreign Economic Relations of Ukraine; other republican departments, that are a subdivision of Foreign Affairs; domestic and foreign research institutes and laboratories.

**Academic rights of Graduates** - can continue their education in specialties and Educational programs training Masters the names of which are given in table. 1.2 section 1.3 this Directory.

### **Areas of employment of graduates**

A specialist in international relations, public communication and regional studies can be employed at embassies, consulates, trade representations and other representative organizations of Ukraine; offices of other countries and international organizations in Ukraine; Ukraine joint-stock foreign, public and private enterprises; public organizations that have close contacts with foreign countries; structural units of President of Ukraine Office; Secretariat of the Supreme Council of Ukraine; structural units of Cabinet of Ministers of Ukraine; Ministry of Foreign Affairs of Ukraine; Ministry of Foreign Economic Relations of Ukraine; other national agencies, that are a subdivision of Foreign Affairs; domestic and foreign research institutes and laboratories.

**Bachelor's Program and Curriculum in Specialty  
"International relations, public communications and regional studies"**

№	Name of discipline	Semester	Amount	
			hours	ECTS credits
1. STANDARD ACADEMIC DISCIPLINES				
1	The economy and foreign economic relations of Ukraine	8	90	3,0
2	Conflict and negotiation theory	7	90	3,0
3	Management and Marketing	6	90	3,0
4	Fundamentals of world politics	4	90	3,0
5	World economy	4	90	3,0
6	Ethnic and demographic processes in the regions of the world	6	90	3,0
7	Fundamentals of geopolitics and geostrategy	6	90	3,0
8	Basics of the scientific research	4	120	4,0
9	Actual problems of international relations in Asia, Africa and Latin America	7	90	3,0
10	Introduction to Specialty "International Relations"	1	120	4,0
11	Diplomatic and Consular Service	5	90	3,0
12	Diplomatic Protocol and Etiquette	6	90	3,0
13	The European Union in international relations	7	90	3,0
14	Foreign Politics and Diplomacy Ukraine	3	90	3,0
15	The foreign politics of Western Europe and North America	7	90	3,0
16	The foreign politics of the former Soviet Union	2	90	3,0
17	Foreign politics of CEE and SEE	8	90	3,0
18	Foreign language (second)	4-8	420	14,0
19	Informational and analytical activities in international relations	6	90	3,0
20	History of International Relations	3-4	210	7,0
21	History of Political Ideas	1	90	3,0
22	Country Knowledge	5-6	210	7,0
23	International information	3-4	120	4,0
24	International private law	8	90	3,0
25	Public International Law	2	90	3,0
26	International relations and world politics	5-6	150	5,0
27	International Economic Relations	7-8	120	4,0
28	International conflicts	2	90	3,0
29	International organizations	5	120	4,0
30	Fundamentals of International Tourism	5	90	3,0
31	Comparative Constitutional Law	2	90	3,0
32	Practical course of domain translation	5-8	600	20,0
33	Modern trends in international relations	7	120	4,0
34	Theory of civilizations	4	90	3,0
35	Theory of International Relations	1	90	3,0
Total for mandatory component			4470	149,0
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Foreign Language	1-4	360	12,0
2	History of Ukrainian state system	1	90	3,0
3	ethnocultural science	1	90	3,0
4	Ukrainian language for professional purposes	2	120	4,0
5	Physical education (not counted academic load)	1-4	180	6,0
6	Philosophy	4	120	4,0
7	Life Safety	1	90	3,0
8	Modern information systems and technologies	4	180	6,0
Total for selected by University			1050	35,0
2.2. Disciplines offered by students				
1	Humanitarian challenges of our time	8	120	4,0
2	Cultural, spiritual and religious traditions of the world	3	120	4,0
3	Latin	1	90	3,0
4	Fundamentals of Agricultural Consulting	6	90	3,0

5	Foundations of economic theory	1	90	3,0
6	Psychology and Pedagogy	8	120	4,0
7	Sociology	2	120	4,0
8	Theory of State and Law	2	120	4,0
9	The economic geography of the world	4	120	4,0
10	History of diplomacy	2	90	3,0
11	Methodology of geographic research	8	150	5,0
12	Fundamentals of Ethnology	8	90	3,0
13	The political geography of the world	2	90	3,0
14	Politology	3	120	4,0
15	Regionalistics	6	120	4,0
<b>Total for selected by students</b>			<b>1650</b>	<b>55</b>
<b>Total for selectable component</b>			<b>2700</b>	<b>90</b>
<b>State certification (State test)</b>			<b>30</b>	<b>1,0</b>
<b>Total for direction</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**The economy and foreign economic relations of Ukraine.** The features of the economic sector are discussed, considering the existing and prospective foreign economic relations of Ukraine and the problems which the state encounters.

**Conflict and negotiation theory.** The nature of conflict and possible solutions, including an efficient negotiation process; systematic professional approach to work with conflict and organizing negotiations.

**Management and Marketing.** The essence and principles of management and decision making; structure of economic and exchange domains, rules of their operation.

**Fundamentals of world politics.** Nature of key events, phenomena and processes inherent to world politics, the common patterns; analysis of processes that are inherent to world politics and the strategy and tactics of behavior for different actors in world politics.

**World economy.** Functioning and development of the world economy, specifics of formation, separation and functioning of the world market segments; analysis of the global economy, market segments and trends inherent to them.

**Ethnic and demographic processes in the world regions.** Basic demographic processes in the world and in Ukraine, their characteristics, causes, conditions and circumstances, given the specificity of ethnic and cultural spirit of the people; systemic vision of events in different regions and countries and development of projects to achieve certain goals in a given region.

**Fundamentals of geopolitics and geostrategy.** The essence of geopolitics and geostrategy as the foundation for international politics, principles of their implementation; planning the strategies of developments of events, given the characteristics of the economic and political situation, mentality and other factors inherent to the object of attention and study.

**Basics of the scientific research.** Strategy, principles and methods of organization and research.

**Actual problems of international relations in Asia, Africa and Latin America.** The combination of the current problems in the context of international relations faced by the countries of Asia, Africa and Latin America, its genesis and directions of a solution.

**Introduction to Specialty "International Relations".** The specifics of the specialty "International Relations", determine the fundamental concepts and principles of international relations and their proceedings.

**Diplomatic and consular service.** Features of diplomatic and consular service, facts and historical knowledge accumulated in the context of diplomatic and consular service; Analysis of diplomatic activities of international actors in the process of bilateral and multilateral diplomacy to resolve the political-administrative, organizational, legal, information and analysis, staffing and other problems within the government units of External Relations to implement foreign politic interests of Ukraine.

**Diplomatic protocol and etiquette.** The history of diplomatic protocol and etiquette, specifics of diplomatic negotiations protocol; major diplomatic documents, their analysis.

**The European Union in international relations.** Key features of the European Union as a subject of international relations, history of its creation, its strengths and weaknesses.

**Foreign politics and diplomacy of Ukraine.** Features of foreign politics and diplomacy of Ukraine, the challenges of internal and external nature, that arise from national interests and national security of Ukraine; analysis of internal and external factors and their influence on politic and diplomatic activities of Ukrainian state.

**The foreign politics of Western Europe and North America.** Features of the foreign politics of Western Europe and North America, the specifics of foreign politics of the region, the role and place of Western Europe and North America in world politics.

**The foreign politics of the former Soviet Union.** Features and key principles of foreign politics of the region, the role and the place of CEE and SEE in world politics; differences and similarities in the foreign politics of the region.

**Foreign language (second).** The set of concepts and terms that make extensive vocabulary and rules of language, grammar and syntax.

**Informational and analytical activities in international relations.** Information flows, new technologies of information analysis; analysis of relations between the subjects of international law and relations; current trends and issues of international communications and information.

**The history of international relations.** International relations, their laws, the major international conflicts, diplomatic events, peace talks, conference documents and materials that characterize international relations.

**The history of political ideas.** The set of theories and doctrines aimed at disclosure of political institutions, processes and phenomena; analysis of political institutions, processes and phenomena taking into account historical experience and political precedents.

**Country Knowledge.** Classification and typology of countries, regional division of the world, and the historical development of the culture, especially the political and state structure of the country, the main directions of economic development of foreign countries.

**International information.** The essence and peculiarities of international cooperation in the field of information and communication, the role and functions of international organizations in shaping and implementing the ideology of information society; current status and trends of global communication processes and their impact on the global, regional and national politics, research and prediction of problems of the international community in the field of information and communication.

**International private law.** Types of sources, directives of the national legal system to regulate international private relations and international regulatory documents, principles of regulation of the legal status of individuals and legal persons in private international law.

**Public International Law.** Key provisions of international and domestic law, types of liability and sanctions in international public law; relationship between international and domestic law.



**International relations and world politics.** The nature of the main features of the driving forces and mechanisms of international relations in the political, economic and cultural spheres from antiquity to the present.

**International Economic Relations.** Main forms of international economic relations, international division of labor trends, the main conceptual approaches to the analysis of international economic relations, trends and features of development of integration processes in the global economy.

**International conflicts.** The essence and nature of international conflicts, especially their flow and the mechanisms that led to their solution; modern conceptual framework and modern approaches of foreign and domestic thinkers associated with the study of the nature of conflict, especially their escalation and settlement, controlling the conflict.

**International organizations.** The nature of the international organizations, the history of their origin and classification; the role of international organizations in streamlining global political and economic space, and in the life of Ukraine.

**Fundamentals of international tourism.** Types and forms of international tourism, the main factors affecting the development and territorial organization of international tourism, the main trends of the modern world tourist complexes; specific characteristics of different types of international tourism, analysis of factors and features of the territorial organization of tourism in the world.

**Comparative Constitutional Law.** Fundamentals of constitutional and legal systems of the world; forms of government inherent to different countries, the sources of state law of foreign countries, modern types of constitutions basis of the legal status of a person in foreign countries.

**Practical course of domain translation.** Overall, phraseology and lexical-morphological and syntactic aspects, and the main task of translation; rules of translation as a kind of communicative activity, guidelines for adequate translation.

**Current trends in international relations.** Features of the system of international relations of the late twentieth century until now, the specifics and trends in contemporary international relations, especially the role of countries and regional and international organizations; features of the modern world order, international relations, political realities of the regions and the world at large, expert evaluation of events and phenomena of political life.

**Theories of civilizations.** Common features in the development of civilizations in the world, global problems of today and their impact on the development of future civilizations, analysis of civilizational cycles facts about the historical development of civilizations of past and present, their material and spiritual culture, religion, etc.

**The theory of international relations.** Basic theory of international relations, types of international systems, their structure and basic properties; analysis of processes and phenomena in the international environment, predictions about the likely situations in international and world politics

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

**Foreign Language.** The set of concepts and terms that make extensive vocabulary and rules of language, grammar and syntax rules and principles of literate oral and written communication.

**History of Ukrainian state system.** Provides deep understanding of the history and formation of the Ukrainian people and Ukrainian state system, strengthening national identity, political activity of classes and social groups in Ukraine at certain stages of historical development. Overall purpose of the course, based on processes of



humanization of higher education, professional integration and socio-humanitarian training, the achievements of world and domestic ideas, human values, is to train highly qualified specialists.

**Ethnocultural science.** Culture, methodological study of cultural phenomena. Typology of cultures, comparative analysis of cultural evolution, development of Ukrainian culture. Traditional Ukrainian culture of family communication, housing maintenance, housekeeping.

**Philosophy.** The course creates a system of knowledge consisting of the following aspects of philosophy: ontology, epistemology (theory of knowledge), social philosophy, philosophy of historical types, revealing the nature of the relation "man - the world" in its most basic forms. The phenomenon of religion, its origin, the basic religious concepts, history and present situation of tribal, early and late religions, the main provisions of faith and worship of the most influential religions in the world. The methods of logic, basic forms and laws of thought, the prerequisites of modern logic, classical logic division, typology and analysis of formal theories of logic.

**Ukrainian language for professional purposes.** Orthographic, morphological, lexical, stylistic, syntax and punctuation rules of modern Ukrainian literary language; Genres of professional communication and basic communication features; culture of political dialogue and speech; principles of structural and stylistic analysis and correction of the text in accordance with Ukrainian language.

**Physical Education.** Basics of maintaining a healthy lifestyle and the benefits of physical activity. Mastering basic elements of massively popular sports game, help maintain a high level of physical skill and physical health.

**Life Safety.** Fundamentals of life safety, key rules for the organization of production environment. Principles and approaches of habitat assessment on personal security, staff, society and the monitoring of dangerous situations.

**Modern information systems and technologies.** The essence of information and information processes, information sources, especially the interaction of information sources. The rules and principles of operating information, defending your rights and freedoms as a carrier and recipient of information, organization and management of communication flows and channels.

## ***2.2. Disciplines offered by students***

**The humanitarian challenges of our time.** The essence and role of humanitarian factor in human existence and humanity, and safeguard mechanisms to stabilize the socio-political and economic systems from excessive exposure to humanitarian factor; the ability to determine the role of humanitarian factors in each situation and globally, as well as features of its sources and methods and ways to neutralize its influence or lead it in the desired direction

**Cultural, spiritual and religious traditions of the world.** Major cultural and religious heritage and traditions of ethnic groups in the world, including Ukrainian, the principles on which there is distinction and classification of cultural achievements. Searching and providing comprehensive characteristics of a particular ethnic heritage.

**Latin.** Knowledge of the basics of the Latin language, skills of translation of Latin texts; use of Latin terminology in training, research and production activities.

**Basics of agricultural consulting.** The principles and rules for consulting support, basic information on the functioning of the agricultural sector. The rules and ways of providing consulting services, comprehensive analysis of the peculiarities of the agricultural sector and the international market of agricultural products and related products and services.

**Fundamentals of economic theory.** The essence of economic phenomena and processes; economic context of property relations, distribution, exchange and consumption of material and spiritual values in the society and the principles of economic activity, basic laws and principles of functioning of industrial sector and market.

**Psychology and pedagogy.** Basic principles of psychology and pedagogy, especially their application in practice. Basic mental processes and conditions that determine the characteristics of human activity, including of thinking processes, principles and approaches to implement targeted remedial effect.

**Sociology.** The structure of sociological knowledge based on the sociological analysis of society, analysis of social phenomena and processes in terms of sociology, basic methodological principles of organizing and conducting sociological research.

**Theory of law.** The nature and essence of the leading political institutions and basic streamlining the legal framework in the country; Main characteristics of the state and socio-political situation in and around it, given the wide range of political and legal knowledge.

**The economic geography of the world.** The nature of economic and environmental issues, conditions of economic activity, especially of territorial differentiation. Rules and principles of complex economic and geographic characteristics of certain areas, analysis of economic development around the world.

**The history of diplomacy.** Features and basics of diplomacy, patterns of its development in different historical periods. Understanding the historical trends of diplomacy, basics of knowledge in the field of diplomacy for analyzing situations and diplomatic conflicts.

**Methodology of geographic research.** The main methods and techniques of geographic research; problems of geography as a complex scientific field. Terms and consistency of geographic research, and drafting comprehensive geographic characteristics of individual countries or groups of countries (regions).

**Fundamentals of Ethnology.** The essence of the processes of ethnogenesis and culturegenesis as the basis of creation of ethnic groups and their spiritual, economic and social spheres. Cultural and mental characteristics of the different ethnic principles.

**Political geography of the world.** Modern political map of the world, basic schools, trends and paradigms of geopolitics. Analysis of the main regional geopolitical problems in the world, expert assessment of the geopolitical situation of the country.

**Politology.** Theoretical and methodological problems of political knowledge, the development of views of prominent thinkers of foreign and domestic politics, the place and role of political actors in the system of political and power relations of society; state politics principles.

**Regional studies.** The main theoretical approaches to the analysis of regionalism concept of socio-politically distinction, especially political regionalization. Expert review of the socio-economic features and political development of specific regions.

**Bachelor**  
**In Speciality “PROFESSIONAL EDUCATION**  
**(technology of production and processing of agricultural products)”**  
**field of knowledge “Education”**

Studies form:	License volume, persons:
– full time course	50
– correspondence course	50
Duration: full time course	4 years
correspondence course	5 years
Credits	240 ECTS
Language	Ukrainian, English
Qualification	Pedagogue of professional education

### **Concept of training**

Training of pedagogue of professional education is determined by demand in professional who conduct activity of teaching and educational process organising, methodological and scientific activity in technical colleges and agricultural colleges, and conduct different arrangements which promote social development of youth in agricultural establishments of higher education.

### **Practical training**

Practical training is conducted according to the plan of studying process on such practice bases as technical colleges and establishments of higher education.

### **Proposed Topics for Bachelor theses**

1. Ways of pedagogical mastery forming of future teachers in technical colleges and establishments of higher education.
2. Activation of students' cognitive and studying activity.
3. Methods of controlling progress.
4. Methods individual work organizing
5. Personality forming of future specialist in spheres of environmental protection and agricultural establishments of higher education according national patriotic values.

**Academic rights of Graduates** - can continue their education in specialties and Educational programs training Masters the names of which are given in table. 1.2 section 1.3 this Directory.

### **Employment of Graduates**

Graduate with qualification “pedagogue of professional training” may work as teacher in technical college, methodologist of correspondence schools and departments; junior scientific researcher; teacher-methodologist; inspector of special and technical colleges; inspector-methodologist.

**Bachelor's Program and Curriculum in Specialty**  
**"Professional education (technology of production and processing**  
**of agricultural products)"**

№	Subject	Term	Volume	
			Hours	ECTS credits
1. STANDARD ACADEMIC DISCIPLINES				
1	Valeology and basic medical knowledge	4	120	4
2	Personal ecoculture	5	90	3
3	Leadership and administration	8	90	3
4	General and professional pedagogics	1	150	5
5	Educational work organising	2	120	4
6	Management of educational establishments	3	120	4
7	Basics of scientific and pedagogic research	6	120	4
8	Psychology	1,2,3	390	13
9	Psychology of work	4	90	3
10	Basics of pedagogic mastery	5	120	4
11	Pedagogical technologies	7	120	4
12	Legislation of Management of educational establishments	5	90	3
13	New information technologies	2	120	4
14	Introduction to speciality	2	90	3
15	Pedagogics of family education	5	90	3
16	History of pedagogics and education in Ukraine	6	120	4
17	Teaching technologies of professional subjects	7,8	240	8
18	Basics of career-guidance	8	120	4
19	Psychological and pedagogical basis of communication	2	90	3
20	Comparative pedagogics	6,7	120	4
21	Pedagogical ethic	8	120	4
22	Basics of eloquence	8	150	5
23	Foreign history of pedagogics and education	7	120	4
Total with compulsory subjects			3000	100
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukraine	1	120	4
2	Ethnoculturology	1	180	6
3	Philosophy	1,2,3	270	9
4	Ukrainian language in professional communication	1	120	4
5	Foreign language	1,2,3,4	240	8
6	Physical training	1,2,3,4	240	8
7	Occupational and daily-life safety	6	120	4
8	Legal culture	3	90	3
Total (selected by the university)			1380	46
2.2. Disciplines offered by students				
1	Jurisprudence	2,3	210	7
2	Basics of economical knowledge	6	90	3
3	Social work in entertainment sphere	7	150	5
4	Age and pedagogical psychology	4	150	5
5	Higher mathematics	2	90	3
6	Entomology	4	120	4
7	Horticulture	6,7	180	6
8	Botanic	2,3	90	3
9	Selection and seed growing	5	120	4
10	Farming	3	90	3
11	Mechanization, electrification and automation of agricultural production	8	90	3
12	Physiology of plants	4	120	4
13	Chemistry	3,4	180	6
14	Plant cultivation	6,7	240	8
15	Phytopathology	5,6	120	4

**CURRICULA AND PROGRAMS OF BACHELOR DEGREE**

16	Agrochemistry	5	120	4
17	Soil science and basics of geology	4,5	180	6
18	Forage producing and grass-farming	5	120	4
19	Technology of storing and processing of plant growing products	8	120	4
20	Biology	2	120	4
21	Physics	3	90	3
22	Ecological safety	4	120	4
23	Environmental protection and sustain environmental management	4,5	180	6
24	Soil science	3	90	3
25	Social ecology	6,7	120	4
26	Meteorology and climatology	4	90	3
27	Management of quality of agricultural products	7	120	4
28	Ecological protection of agrosytsems	5,6	180	6
29	General ecology	3,4,5	240	8
30	Monitoring of environment	5	120	4
31	Ecological analysis	4,5	180	6
32	Chemistry and biogeochemistry	5	120	4
33	Geology and basics of geomorphology	8	120	4
34	Ecological legislation	8	90	3
35	Dendrology	4	120	4
36	General ecology	5	90	3
37	Basics of forest exploitation	5	120	4
38	Forest phytopathology and entomology	5,6	180	6
39	Geodesy	3	90	3
40	Forest zoology	4	90	3
41	Organising of forestry production	8	90	3
42	Physics	4	120	4
43	Mechanization of forestry	5,6	180	6
44	Botanic	2,3,4	240	8
45	Forest crops	6,7	120	4
46	Forest soil science	5	120	4
47	Chemistry	2,3,4	180	6
48	Forestry	7	120	4
49	Forest melioration	8	120	4
50	Auditing	7	90	3
51	Microeconomics	4	120	4
52	Marketing	4	90	3
53	Macroeconomics	5	120	4
54	Economics of enterprise	5,6	180	6
55	Management	3	90	3
56	Tax system	8	90	3
57	Accounting	4	120	4
58	Informatics	2,3,4	180	6
59	Agricultural management	6,7	240	8
60	Finances	5	120	4
61	Organizing of production	6	120	4
62	Higher mathematics	2,3,4	180	6
63	Money and credits	5	120	4
64	Economics of labour and social relations	8	120	4
65	Botanic	2	90	3
66	History of floristic design	4	120	4
67	Ukrainian and foreign culture	6,7	180	6
68	Floriculture	2,3	90	3
69	Folklore	5	120	4
70	Ethics and etiquette	3	90	3
71	General ecology	8	90	3
72	Composition and colour study	4	120	4
73	Painting	3,4	180	6

74	Decorative floristic	6,7	240	8
75	Basics of arrangement	5,6	120	4
76	Aesthetics	5	120	4
77	Decorative art	4,5	180	6
78	Phytodesign	5	120	4
79	Theory and methodology of design	8	120	4
<b>Total (specialty)</b>			<b>2580</b>	<b>86</b>
<b>Total (selection of student)</b>			<b>2580</b>	<b>86</b>
<b>Total (optional)</b>			<b>3720</b>	<b>124</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military training	5-8	870	29
2	Studying practice	2,4	210	7
3	Industrial practice	6,8	210	7
<b>Bachelor thesis or project</b>			<b>60</b>	<b>2</b>
<b>Total (without military training)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Valeology and the Science and fundamentals of medical knowledge.** Health culture; the formation, preservation and strengthening of health of the person in spiritual, mental and physical aspects, hardening of the body, strengthening of physical and mental health; balanced nutrition, organization of work and rest. The first aid in threatening life conditions, occurring at diseases of internal organs, infectious diseases, injuries, and accidents.

**Personal eco-culture.** The relationship of man and environment, requirements to ecological culture, formation of ecological culture of the individual.

**The rationale of leadership and administration.** Deals with the theoretical and practical bases of formation of leadership qualities of future specialists. Analyzes source base of the study of leadership, in particular methods of developing leadership potential of the individual.

**General and professional pedagogy.** Theoretical foundations of pedagogy as a science about education of the person, basic categories, laws and principles; the nature and pedagogical requirements for the content of general and vocational education, the general methods and means of training and education, forms of organization of teaching process in secondary and vocational schools; fundamentals of management of educational process in secondary and vocational schools; formation of readiness of students to pedagogical activity, interest in the teaching profession.

**Organization of educational work at the HEI.** The formation of students' scientific concepts about the theory and methodology of teaching, its aims and objectives; assistance to trainees in mastering the basic theoretical knowledge and practical skills in the education of the individual and of the team and training them to apply these knowledge and skills in future teaching activities; introducing the future teachers to the methodologies of research and education of the individual, the work of supervisor of student group on team-building, developing and carrying out educational activities.

**Management of the educational establishment.** Providing a more holistic model of a specialist – the head of the institution through the acquisition of legislative-normative, methodological, theoretical, organizational, and technological knowledge and acquisition of diagnostic and predictive (modeling), organizational, regulatory, control and corrective skills that correspond to basic management functions.



**Foundation for scientific and educational research.** Introducing students to contemporary methodological problems of science; the main stages of scientific and pedagogical research; methods of socio-pedagogical research; forming in students the concept of methodology of scientific research; mastering the basic theoretical knowledge and practical skills of organizing, conducting scientific and pedagogical research; developing the ability to summarize the results of scientific research; developing the scientific worldview of students.

**Psychology.** General issues of psychology, especially the development of psyche in phylogenesis and ontogenesis, the driving force of development of psyche, mental processes, mental states and personality traits.

**Psychology of work.** To familiarize students with the regularities of the labour process, the psychological requirements of the individual employee; to reveal the content and place of labour psychology in the system of scientific knowledge, the history of its formation, laws, principles, approaches, methods, psychological meaning of work; to do psychological problems of work incentives and motivation, problems, progress, performance, and professional potential of the modern worker, self-realization in various types of professional activities, as well as the psychological problems of study of the professions in modern social and cultural conditions.

**Basics of pedagogical mastery.** The course aims to develop skills of pedagogical activity, to promote the enrichment of the educational experience of future teachers, knowledge of pedagogy and psychology, innovative educational technologies, culture of pedagogical communication; to create conditions for the accumulation of experience of the optimal combination of basic education with learning the art of communication; formation of practical teaching skills, pedagogical culture and erudition. The course provides familiarization with the basics of the teaching process; the study of the peculiarities of pedagogical interaction; the improvement of pedagogical abilities of students; mastery of methods of training and education; familiarization with the basics of teaching in higher education.

**Pedagogical technologies.** The aim of the course is to develop the students' scientific knowledge about educational technologies in education, their goals and objectives; to help future teachers in mastering the basic theoretical knowledge and practical skills to apply new pedagogical technologies in the educational process and to teach them to apply the knowledge and skills in future teaching activities.

**Legislative framework for the management of educational institutions.** The purpose of discipline is to provide the students with advanced theoretical and practical knowledge on the legal bases of foundation and activities of educational institutions of Ukraine of all levels, as well as the formation of skills of practical application of norms of the current legislation at positions in educational institutions.

**New information technologies.** The discipline considers the processes of information processing with regard to the role and place of these processes in the development of knowledge and society.

**Introduction to the specialty.** The discipline outlines the main tasks and functions of the professional learning teacher, requirements to his personality and the organization of labour conditions.

**Pedagogy of family upbringing.** The aim of teaching the discipline is to develop scientific knowledge on the theory and methodology of family education, its goals and objectives, problems and prospects of development of the modern family, its functions and types, characteristics of social work with problem and young families; assistance in mastering the basic theoretical knowledge and practical skills to educate the individual in the family.

**History of pedagogy and education in Ukraine.** The academic discipline discloses the process of the development of education, school and pedagogical thought from ancient times to the present day in Ukraine in the context of the development of the world's historical

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and pedagogical process, the regularities of the historical development of schools and education in Ukraine, peculiarities of formation and nature of the major pedagogical theories in the different stages of social development.

**Technology of teaching of professional disciplines.** The purpose of the discipline is to provide students with the knowledge and skills of the organization of the educational process for the study of professionally oriented disciplines at higher educational institutions.

**Basics of vocational guidance.** The discipline is aimed at the study of theoretical problems of vocational guidance of youth, the characteristics of the role and place of secondary school in the process of career guidance, learning basic patterns, trends and structures of the organization of vocational guidance work of the vocational training teacher; providing the future organizers of career guidance with modern techniques and practical skills necessary for successful professional activity.

**Psychological and pedagogical principles of interpersonal communication.** The discipline is intended to form students' scientific knowledge about interpersonal communication, its mechanisms, patterns, methods and means; to assist future teachers in mastering the practical skills of establishing rapport, networking and teach them to apply the knowledge and skills in future teaching activities.

**Comparative pedagogy.** The purpose of the discipline is formation of theoretical knowledge of major paradigms, trends of the development of education in the world, skills to apply the obtained knowledge in pedagogical activity, creative approach to solving any educational problem. An important emphasis in the course is put on the study of forms and methods of socializing influence of the modern school.

**Professional and pedagogical ethics.** The objective of the course is to familiarize students with the definition of the essence of a number of concepts (ethics, moral consciousness of the high school teacher, the ethical principles and values of pedagogical activity, moral duty and responsibility of the teacher, pedagogical justice); historical characteristics of the development of pedagogical ethics, peculiarities of the moral consciousness of the teacher; the basic moral and personal qualities that should be developed in the teacher; ethics and principles of professional activities of teachers; psychological and pedagogical foundations of moral self-improvement of teachers.

**Foundations of eloquence.** The discipline makes students familiar with the basic laws of speech activity, its mechanisms, patterns, methods and techniques, mastery of practical skills of creating a persuasive and effective speech, a multifaceted possibilities of the art of the word, the emotional and intellectual interaction with the listener with the aim of pedagogical influence on him as a person.

**History of pedagogy and education in foreign countries.** The discipline studies the relationship between the educational ideas of theorists and practitioners, tradition and innovation in the development and implementation of pedagogical ideas; ideas and contribution of an outstanding teacher in the theory and practice of training and education; socio-historical conditions that have affected the worldview and pedagogical beliefs of a scientist-teacher, led to his contribution to the development of the theory of pedagogy.

## **2. Elective academic disciplines**

### **2.1. Disciplines offered by University**

Annotations of courses "History of Ukrainian statehood" "Ethnoculturology", "Philosophy", "Ukrainian language for professional purposes", "Foreign language", "Physical training", "Labour and life safety", " Legal culture of personality" see Section 2.1.

## **2.2. Disciplines offered by students**

### **2.2.1. Specialization "Technology of production and processing of agricultural products"**

**Law.** The course provides students with broad theoretical and practical legal knowledge, focuses on the most important provisions of the key branches of the law of Ukraine, formation of students' legal consciousness and legal culture.

**The principles of economic knowledge.** The theoretical part of the course provides students with the knowledge of the basic principles and regularities of the economic system of the country, the applied part deals with the basic provisions of the methods of analysis and calculation of microeconomic and macroeconomic measure.

**Social work in the sphere of leisure.** The course examines conditions of social formation of personality engaged in leisure activities, peculiarities and organization of social and educational activity with different groups of children and young people who need assistance, support and protection through leisure activities.

**Developmental and pedagogical psychology.** The course provides knowledge of the peculiarities of mental, personal development at different stages of life, the use of psychological potential of a teacher and a student in the process of learning, upbringing, acquiring social experience.

**Higher mathematics.** The course provides students with knowledge of the main branches of higher mathematics in correspondence with the direction of their training: definitions, theorems, rules, development of skills to formulate learning objectives and construct their mathematical models, choose methods of research of the constructed models, conduct quantitative analysis by applying precise or approximate methods of calculations, modern computing equipment, process numerical experimental data by applying methods of mathematical statistics, analyze the data and evaluate the results obtained.

**Entomology.** The study of morphology, biology and ecology of the main pests of field crops and perennial plantings, crop losses, the economic importance of protection of agricultural crops from pests. Regulation of the number of harmful organisms through various means and methods by using thresholds of harmfulness and levels of efficiency of entomophages. The module "beekeeping" provides students with the knowledge of melliferous plants, pollination of crops by bees. The students study plant products that bees collect for forage and produce marketable products. The course studies characteristics of honey plants, their classification and use to create honey flow in different periods of the season. The course highlights the role of bees as pollinators of plants, examines equipment and organization of pollination of various crops, efficiency in crop yield increases.

**Fruit and vegetable growing.** The course focuses on the importance of fruit and berry plants, their morphological and biological characteristics, methods of reproduction, rootstocks, the structure of a fruit nursery and technology of growing seedlings, installing fruit plants, maintenance and soil cultivation systems in gardens, plant fertilization and irrigation, shaping and pruning fruit trees, crop care and other types of work in gardens, preparing and harvesting technology, biological characteristics and crop cultivation technologies. The lectures cover the biological bases of vegetable crops, peculiarities of soil preparation and fertilization, plant reproduction, cultivation of seedlings for open ground, general measures for plant care, harvesting, and principles of vegetable crop rotations. In laboratory and practical classes students study morphological characteristics of vegetable crops, their classification, the species composition of seeds, their germination, reproduction methods, estimate the requirements for the seedlings of seeds of various crops.

**Botany.** The course focuses on learning the patterns of plant growth and vegetation as the most important bioenergetic component of the biosphere. The students obtain skills of

working with a microscope, producing preparations and making their cellular and tissue analysis, as well as the analysis of separate organs and the whole organism.

**Selection and field crop seed production.** The course focuses on the current status and achievements of selection, the requirements to agricultural production of varieties and hybrids, tasks and directions of selection, technologies of selection process, modern methods of creating new varieties and hybrids of field crops.

**Arable farming.** The course covers the scientific principles of arable farming and their practical implementation; soil fertility reproduction, general concepts about weeds and methods of crop protection; theoretical principles of crop rotation and their practical application in different soil-climatic zones of Ukraine and in farms with different forms of ownership; theoretical principles of soil tillage and protection from erosion; arable farming systems and their zonal characteristics.

**Mechanization, electrification and automation of agricultural production.** The discipline provides the essential amount of information on functions, structure, design features, working procedures and regulations, operation mode adjustment of agricultural machinery, efficient part kitting and exploitation of tractor units.

**Plant physiology.** The discipline studies the main physiological processes in plants, physiology and biochemistry of plant cells, water exchange of plants, photosynthesis, respiration, mineral nutrition, plant growth and development, plant resistance to adverse conditions.

**Chemistry.** Theoretical principles of modern inorganic chemistry and peculiarities of chemistry of biogenic elements. The chemical processes involving these elements and their compounds are considered from the standpoint of electrolytic dissociation, hydrolysis, redox processes and possibility of forming complex compounds. The basics of qualitative and quantitative chemical analysis. Quantitative methods of gravimetry, acid-base titration, redoxmetry, complexometry. The study of physical and colloid chemistry includes the issues of thermodynamics, thermochemistry, theory of solutions, chemical kinetics and catalysis, the principles of highly dispersed state of substances, surface phenomena and adsorption.

**Plant cultivation.** The course provides knowledge about cultivation of grain, potatoes, sugar beet, sunflower seed and other crop products. The knowledge basis is field crops, peculiarities of their growth and development, requirements to environmental factors, up-to-date methods and technologies of obtaining high yields of quality products with the minimum costs of labor and resources. The students obtain the knowledge about the state and prospects of development of plant cultivation, its importance, morphological and biological characteristics of field crops, modern technologies of cultivation, including intensive ways and means of improving the quality of agricultural products, reduction of labor costs and means of crop cultivation.

**Phytopathology.** The course studies the disease processes in plants, their causes and methods of combating them.

**Agrochemistry.** The course focuses on theoretical and practical nutrition and fertilisation of crop plants. The discipline studies the chemical melioration of soil, characteristics of organic and mineral fertilizers and their use, the balance of nutrients, the use of fertilizers in crop rotation, the combination of fertilizers and plant protection means, the environmental aspects of fertilizer application.

**Soil science with the basics of Geology.** The course studies the origin, development, structure, composition, properties and regularities of geographical distribution of soils, ways of their rational use and restoration of fertility.

**Forage production and meadow cultivation.** The course provides knowledge about science-based system of organizational, biological, technological and economic approaches to production, harvesting and fodder storage; the system of organizational measures and technological methods aimed at improving productivity of natural grasslands, cultivating seeded grasslands and pastures and their rational use.

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**Technology of storage and processing of crop production.** The course studies technologies of postharvest treatment of cereals, legumes, cereals, oilseeds, sugar beet, bast-fibre, hops, tobacco, fruit and vegetable, short-term and long-term storage, principles of processing, and finalizes the study of technologies of cultivating cereals, legumes, technical, vegetable, fruit and berry crops.

**Biology.** The course provides the knowledge about the impact of economic activities on natural habitats, most common higher plant species of flora and regional plant communities, methods of floristic and phytocenological research; skills of conducting geobotanical description of meadow, forest and anthropogenic phytocenoses, the study of plants-indicators of various types and habitats; identifying reservators of viral infections in agroecosystems.

**Physics.** Physical fundamentals of mechanics, fundamentals of molecular physics and thermodynamics, constant electric current, electromagnetism, electromagnetic oscillations and waves.

**Environmental safety.** The course provides knowledge of fundamental and applied aspects of ecological safety of the environment, abilities and skills in using methods and techniques of assessing the impact on the environment, identification of risks of emergencies, processing, analysis, systematization and generalization of information on environmental security.

**Environmental protection and sustainable use of natural resources.** The course provides acquisition of knowledge and professional skills in fundamental and applied ecology, protection of environment (in different sectors of the economy), ability to respond to environmental challenges through implementation of environmental scientific research and expert control methods for ecological forecasting, environment engineering, environmental control, monitoring, certification, auditing, assessment and inspection of various components of the environment, to predict, prevent and eliminate environmental risks and hazards on the local, regional, national and global levels.

**Soil science (Pedology).** The course provides deep knowledge and study of soil surface as the environment for crop cultivation and habitat of living organisms, the study of the structure and basic properties of soils and their mineralogical composition, geographical soil distribution patterns, knowledge of natural processes of soil formation.

**Social ecology.** Formation of knowledge in the reasons, scales and consequences of national nature management, finding the ways of overcoming of current crisis under the relations of society and nature, social and ecological consciousness, new ethical treatment of a human-being to the nature; ability and skills to develop the principles of management of anthropogenic and natural ecosystems.

**Meteorology and climatology.** Formation of knowledge about the key meteorological factors, properties and physical processes, meteorological phenomena and mechanisms; gaining skills in assessment of synoptic weather, meteorological factors of influence on agrosphere, the use of meteorological observations for complex ecological analysis of the environment and making of important ecological decisions.

**Management of quality of agricultural products.** Mastering of educational principles of technological methods that form quality coefficient of plant products, skills formation in monitoring and application chemicalization means in technological processes of obtaining plant products, preservation and fertility increase of soils considering natural conditions, production market, application of agricultural chemicals with the aim of optimization crop nutrition, productivity increase and obtaining of high quality plant products .

**Ecological protection of agricultural ecosystems.** Formation of knowledge about structure and functioning of agricultural ecosystems, methods of optimization of agricultural landscapes, prognosis of the development of crop diseases in agroecosystems; ability to identify and keep records of pests and pathogenic agent, forecast their development, optimize agroscape based on contour land reclamation organization of agricultural lands.



**General ecology.** Students get knowledge in key principals of environmental sciences, namely: study of biosphere and ecosystems, the problems of sources and streams of energy in ecosystems, regularity of influence of ecological factors, biotic interrelation between individual organisms, species and their populations; skills and ability in determination of natural resource potential of ecosystems and social and economic analysis of their economic activity.

**Monitoring of the environment.** Formation of knowledge about the system of state monitoring of the environment, monitoring of atmospheric air, water objects of agro sphere, soil ecological monitoring, phito sanitary monitoring of pests in agrocoenosis; skills and ability to conduct ecological and land reclamation monitoring of irrigated and dried soils, to determine the extent of diseases prevalence.

**Ecological expertise.** Formation of knowledge about normative and legal support of ecological expert activity, general requirements to conducting ecological expertise, the peculiarities of conducting geo ecological expertise as the new research and practical activity in evaluation of mechanism of co-adaptation of natural end economic subsystems, procedures and methods of conducting of geo ecological expertise; ability to conduct ecological expertise of technologies, raw materials and products.

**Chemistry with the principles of bio geo chemistry.** Formation of knowledge in bio geo chemical aspects of biosphere and their functioning principles, migration types, biological circulation and bio geo chemical cycles of live matter; ability to apply methods of bio indication of the environment for bio geo chemical division into districts, forecast measures as to getting high quality ecofriendly agricultural products; to analyze bio geo chemical situation of endemic regions; to work out the recommendations for optimization of anthropogenic landscapes with the aim to minimize the negative effect of human activity and keep balance between the components of ecosystems.

**Geology with the principles of geo morphology.** Formation of knowledge about creation of typification and classification of the forms of relief and geo morphological division into districts of the territory, interrelations and correlation between geological structures and morphology of relief; ability to establish interrelations of soil formation factors, identify erosion processes under various soil climatic and geo morphological conditions, evaluate anti erosion measures and their role in improvement of the environment.

**Ecological law.** Study of the system of current ecological legislation as well as ecologic and law issues of the science of ecological law; study of the system of current nature resources legislation, key issues concerning the land use, water use, resource use, forest use, the use of atmospheric air, flora and fauna; study of the system of current nature resources legislation, key issues concerning land, water, resources, forests, atmospheric air, flora and fauna protection.

**Dendrology.** Plant ecology. Species, interspecific systematic units. Area types. Vital forms and cycles. Philogenetic system. Dendro flora of Ukraine. Plant introduction. Phitocoenology. Forest formation and association.

**Principles of forest use.** Logging resources. The main phases of forest exploitation. Organization of logging works. The principles of theory of wood processing. Ways of wood transportation. Efficiency of lumbering and wood processing machines and mechanisms.

**Forest phitopathology and forest entomology.** Pathogenic agent of seedlings, plantations, needles, leaves and their symptoms. Root and trunk rotten. House, edible and poisonous mushrooms. Methods and measures of forest protection. Technology of forest protection. Biology, systematization and classification of insects. Ecological factors and trophic relations. Methods and measures of plantation protection. Needle and leaf suckers, trunk pests. Seeds, seedlings, young plantations and wood pests.

**Geodesy.** General geodesic concepts; orientation of lines on the locality; coordination in geodesy; theodolite survey; ways of calculation of plots area; geometric levelling; engineering projecting according to the profile; levelling of surface; locality relief;

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topographic map; classification of maps; task solving on a topographic map; tachometric survey; the principles of aerial mapping and decoding of aerial photographs; topographic and geodesic works in forest management.

**Forest zoology.** Species and peculiarities of expansion of representatives of forest fauna; the consequences of anthropogenic effect on forest; the examples of positive and negative effect of mammals and birds on forest environment; the understanding of the reasons of extinction of animals and the ways of their preservation; the principles of legislation as to animal preservation.

**Organization of forest production.** Organization of production as applied economic discipline. Forestry enterprises. Labour organization. Remuneration. Organization of the use of production facilities. Organization of forest use, preservation and protection of forests, reforestation, forest industry activity. Operation planning of production activity. Financial support of production. Operation analysis of production activity.

**Physics.** The aim of the discipline is formation of students' scientific physical thinking, especially the correct understanding of bounds of application of various scientific concepts, laws, theories and the ability to evaluate the degree of probability of results.

**Mechanization of forestry.** Construction of soil cultivation and seed gathering, sawing, forest planting machines. Machines for forest preservation and protection. Mechanization of cutting of forest inspection. Gathering of machine and tractor aggregates.

**Forest plants.** Issues of forest seed business, organization of forest seedbeds, the peculiarities of growing of planting stock, forest cultures division into districts, creation and growing of cultures of main forest creation and precious tree species. Forest seed business, planting stock, forest cultures division into districts and technology of creation of artificial forest plantations.

**Forest soil science.** Processes of soil creation. Mineral and organic parts of soil. Regularity of soil extension in Ukraine. Forest plant properties of soils.

**Silviculture.** Practical silviculture. Systems and ways of forest cutting. Cutting inspection. Increase of forest productivity.

**Forest melioration.** The key forestry and forest melioration principles that determine technology of creation and growing of protective forest plantations. Soil erosion and its prevention. Agro technical peculiarities of creation and growing of forest melioration plantations on erosion soils. Sands, their fastening and assimilation.

**Audit.** Peculiarities of application of element of organization, registers of synthetic and analytic accounting. Accounting of finance, calculations, tangible resources, main instruments, intangible assets, salary and wage, systems, alternative spending on production, calculation of product cost. Functions of audit: verification of accuracy of balance statement and income and losses statement, analysis of the state of accounting, its conformity to the legal requirements; compliance of equality of shareholders' rights when distributing dividends and voting.

**Microeconomics.** The aim of the discipline is formation of market oriented outlook, knowledge and skills as to finding out the mechanisms of establishment and renewal of the balance of micro systems and increase of the efficiency of economic entity activity. In order to achieve the aim there are the following tasks: understanding of reasons, key regularities and methodological principles of behavior of economic entities under the market conditions at micro level; mastering of universal tools for self analysis and substantiation of making optimal economic decisions under the conditions of insufficiency of means and availability of alternative possibilities.

**Marketing.** Studying and mastering in theoretical knowledge and practical skills as to application and use of market tools; organization, planning, managing agro marketing activity of AIC enterprises. The aims of the discipline "Marketing" are to obtain knowledge I the sphere of agrarian marketing; market research of agricultural products and foodstuff market; forecasting of market conditions; management of product range of AIC enterprises and their

quality; pricing; systems of distribution of agricultural and foodstuff products; promotion of foodstuff on domestic and foreign markets; as well as obtaining knowledge in the sphere of planning of agrarian marketing, management and control of agro marketing activity.

**Macroeconomics.** The aim of the discipline is giving deep theoretical knowledge in the issues of functioning of the economy – the important sphere of human vital activity, the effect of objective economic laws, introduction of methods and conditions of efficient economic activity and the whole systematic concept of macroeconomic theory and policy.

**Economy of an enterprise.** Economic mechanism of functioning of an enterprise, formation and use of its resource potential with aim of optimization of economic performance.

**Management.** The system of knowledge of management essence in enterprises and organizations of agroindustrial complex and production processes management skills; conditions for business structures efficiency; diagnosis and designing system of agricultural management, adequate to goals and objectives of market economy in agriculture. The objective of discipline is to train future professionals able to streamline the organizational structure and to develop management system in enterprise (organization), to maintain their resilience and capacity, to ensure enterprise dynamic development and competitiveness, which precedes theoretical training of students for management and agricultural management.

**Tax system.** The purpose of the course is to study out the economic nature of taxes, their essence, functions, objectivity in market conditions; to reveal the contents of tax policy, tax system, tax mechanism and their components, to examine practical mechanism for the application of certain taxes and fees, to master requirements for filling tax returns and tax calculation mechanism. Objectives: To study theoretical and organizational bases of taxation, tax calculation methodology, procedure of tax payment and obligatory payments for legal entities and individuals.

**Accounting.** The purpose of the discipline is to form knowledge system in theory and practice of accounting in the enterprise. The main objectives of discipline "Accounting" is to study methods, rational organization and accounting in enterprises based on the use of advanced forms and national standards; to master skills of processing and use of accounting information in management.

**Computer science.** The purpose of the course is to develop knowledge in principles of computer construction and operation, organization of computing processes on personal computers and their algorithmization, both PC software, computer networks, and effective use of modern information and communication technologies in professional activity. The main objectives of the course is to study theoretical foundations of computer science and to master skills in applied systems using of economic data processing; PC programming systems; computer networks in the process of social and economic systems studying. It provides the study of four informative modules: the architecture of modern computer, modern text information processing software, operations with MS Excel spreadsheet software and advanced software for processing graphic data.

**Agricultural Management.** The main goal of the discipline is to develop the students' managerial thinking and systems of specific knowledge in the field of agricultural management, to form an understanding of the conceptual bases of agricultural organizations management; to acquire skills of internal and external environment analysis.

**Finances.** The purpose of the discipline "Finance" is to develop basic knowledge in finance theory, to learn the laws of their functioning on macro and micro levels as the theoretical basis of financial policy and financial system development. The educational purpose of the discipline involves the knowledge gaining in all areas of financial mechanism functioning, namely to form students' conceptual apparatus in finance category to use it in practice; provide information on finances, financial system of the state and its role in economy functioning; to study how to apply their knowledge in practice, to make informed decisions and to solve tasks.

**Organization of production.** The purpose of the discipline is to give future specialists and managers of agricultural sector in agribusiness scientific knowledge on effective organization of agricultural production in the conditions of mixed economy and the development of market relations. Knowledge of organizational, economic, legal and social aspects of new types of businesses, farming methods, internal economic relations in enterprises, which this discipline teaches, is particularly important nowadays.

**Money and credit.** The purpose of the course "Money and Credit" is to provide students with theoretical and practical knowledge in organization cash flow management, to form students' theoretical basis for the next practice mastering in monetary instruments use in the regulation system of Ukrainian economy. It is important to study economic relations with money turnover, including as a means of circulation and use of credit relations in modern economy.

**Economics of labor and labor relations.** Academic discipline involves the study of issues related to the work as a leading factor of production, development of society labor potential, formation and functioning of the system of social and labor relations, labor market regulation. The main sections of the course is the organization, rationing and labor payment, particularly in agriculture. The issues of employment and social population protection, international experience of social and labor relations regulation.

**The history of floral design.** The art of decorating festive procession, clothes, interiors with fresh flowers, leaves, branches, fruit and other decorative material has had a long history. These are examples of applied and decorative arts, architecture, painting and poetry. The proposed course reveals the history of floral design in ancient Egypt, Mesopotamia, Greece, Rome, Byzantium, Kyivan Rus, Japan and other countries.

**Ukrainian and world culture.** Fundamental achievements of the national culture as an integral process of global cultural environmental have been analyzed. Unity and diversity of the Ukrainian and world cultures, the role and importance of culture in life, creativity and self-identity in the humanization of social relations have been revealed. The development of Ukrainian culture covers the period from its sources to new aspirations of integration into the global cultural environment.

**Floriculture.** The discipline "Floriculture" involves studying biological and ecological features of the development, propagation and farming of flower-ornamental crops of unprotected soil, mastering theoretical knowledge of growth and development peculiarities of annual, biennial, perennial flowers and decorative plants, used to make different types of flowerbeds, gaining practical skills in their breeding and planting, flower development projects. The study of cultivation technology in protected ground is provided in the second part of the course.

**Folklore.** The discipline highlights the development of folk art from the origins to the present, text peculiarities under certain historical conditions. A new periodization and classification of folklore genres with current research of history, ethnic psychology, cultural study, and mythology has been suggested. Each folk art phenomenon is seen in its correlation with fiction.

**Ethics and etiquette.** Morality as a social phenomenon, as a cultural phenomenon and as a form of worldview is considered, moral issues of human consciousness, activity and communication have been highlighted. Internal, existential aspects of morality, the issues of good and evil, responsibility, sense of life, happiness, justice and love has been revealed. A number of actual ethical issues including correlation of moral and law, morality and politics, national and universal moral values.

**General ecology.** Ecology gives an idea of how to achieve the symbiosis of technology, production and nature – nowadays these are not coordinated enough biosphere and sociosphere components. The program shows the contents of general ecology, its place in the natural sciences is determined; history of environmental science has been submitted. The sections of the discipline are set out in hierarchical order: autecology (organism ecology),

population ecology, biotsenology (synecology), biogeotsenology (ekosystemology) and biosphereology (global ecology). The course considers applied environmental issues – natural, social and technological.

**Composition and chromatics.** Composition, painting, anatomy, perspective, drawing and chromatics are studied by future artists.

**Drawing and painting.** The curriculum reveals the most essential things that a beginner-artist should know; the intricate details of the landscape: water, mountains, atmospheric phenomena, sky, forest, separate tree. It reveals skills to use art of color, technique of painting, still life, images of human being and landscape.

**Decorative floristics.** Varieties of decorative art and design, which is embodied in creating the floral works: bouquets, compositions, pictures, collages and similar works from different natural materials that can be live, dried or canned.

**Fundamentals of arrangement.** The purpose is to master skills of creating floral arrangements due to the laws and principles of design using natural living, canned or artificial plant material. Getting theoretical and practical knowledge of the plants selection, their preparation, conservation and modification rules, composition basis of flower arrangement. Objectives: During the course students must learn the layout of the plant material according to the basic rules of composite decisions in the European flower design.

**Aesthetics.** At the level of the modern scientific understanding of the aesthetic and artistic knowledge the history of world and aesthetic thought, peculiarities of its status at the Ukrainian and Russian groundwork has been highlighted; the subject content, its goals, objectives and functions of aesthetics as a science have been defined. Aesthetics categories, specific structure of aesthetic activity and features of aesthetic consciousness have been characterized. Art as a social phenomenon, its morphology, development patterns and historical typology have been analyzed. The nature, characteristics and personal aesthetic culture and system of aesthetic education has been revealed. The importance of aesthetic culture in common human culture has been founded.

**Decorative art.** For centuries various art handicrafts have been formed: they are wood and bones carving, painting, embroidery, vybiyka, ceramics, casting, stamping, weaving, vytynannya. The best examples of Ukrainian decorative and applied art of different regions absorbed the richness of the human soul and folk talent into their designs, shapes and colors. The course introduces the history and practice of arts and crafts.

**Floristic design.** The discipline reveals the issues related to chromatics, composition, color characteristics of plants, methods of designing and constructing in phytodesign, features of ornament use, planting principles of various types of accommodation with plants and cut crops, varieties of flowers and ornamental plants, arranging methods of winter gardens, balconies etc.

**Theory and methodology of design.** The course aims to examine issues of industrial (technical) aesthetics and design development, issues of science synthesis, technology and art, correlation of beauty and functionality in material culture, principles of color design, use of qualimetric methods for aesthetic evaluation of design objects.

## **2.17. EDUCATIONAL AND RESEARCH INSTITUTE OF CONTINUING EDUCATION**

**Director** – PhD in Economics, Professor **Maria M. Kulayets**

Tel.: (044) 259-79-11 E-mail: pdv1204@ukr.net

Location: Building №10, Room 219

The ERI organizes and coordinates the educational process of bachelors in the following specialty:

### ***242 Tourism***

Graduating Department:

Extension Department Tel.: (044) 527-80-61 E-mail: tatiankd@yahoo.com

Head of Department – Doctor of Economics, Professor Tetyana P. Kalna-Dubinyuk

**Bachelor  
in specialty "TOURISM"  
field of knowledge "Service sector"**

Form of Training:	Licensed number of persons:
– Full-time	25
– Part-time	25
Duration of Training	4 years
Credits ECTS	240
Language of Teaching	Ukrainian, English
Qualification	Bachelor of Tourism, Tourist Services Specialist

**Concept of Training**

Providing training highly qualified specialists in tourism, particularly in the field of green tourism in order to preserve the ecology of the environment, social development of rural areas, better use of human resources in the tourism and recreation sector, enhance their professional and social mobility, forming a creative, socially active, spiritually rich personality according to its interests, needs and demands of society and the state. The program involves the use of advanced interactive computer technology studies at leading universities in Europe, America, attracting foreign professors to give lectures.

**Practical Training**

Professional practice of students is an important part of the educational process for the preparation of qualified specialists in tourism. During the study of natural science and professionally oriented, and practical trainings students are introduced to most developed recreation and tourism regions of Ukraine and abroad. In practical training students perform professional duties of managers, marketers, managers of hotels, instructors, animators, guides and interpreters, analysts and others, including health and spa facilities, tourist and hotel complexes, travel agencies and tours, advertising and information centers, resorts and tourism associations, dining and objects of green tourism.

**Proposed Topics for Bachelor Theses**

1. The development of the tourist market.
2. Planning and organization of the travel company.
3. Innovative development of green tourism in Ukraine.
4. The resource potential of the country for the prospects of green tourism development.
5. Methods and techniques in Public Relations for the tourism enterprises development.
6. Development of green tourism abroad.
7. Using of information technology in the enterprise tourism industry.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational programs specified in Table 1.2 Section 1.3 this Catalog.



### **Employment of Graduates**

Specialists are trained for organizational, administrative, economic, commercial, investment and research activities in the field of tourism. Graduates work in enterprises and organizations in the tourism of various forms of ownership and types of entities including a green tourism as heads of travel companies and facilities, travel agencies, etc., experts and heads of administrative work, logistics, marketing, commercial and international departments, HR managers, owners of green estates and so on.

## Bachelor's Program and Curriculum in Specialty «Tourism»

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Economic Theory: Foundations of Economic Theory:	1	120	4
2	Higher Mathematics	1,2	210	7
3	Information Systems and Technology	1,2	150	5
4	History of Ukrainian Culture	2	120	4
5	Geography of Tourism	3	120	4
6	Tourism geography	1	150	5
7	Ecology	3	120	4
8	Museology	3	120	4
9	Travel Nandigram	3	120	4
10	Communicative Management	4	120	4
11	The Organization of Tourist Trips	4	180	6
12	Fundamentals of Tourism Knowledge	2	240	8
13	Accounting and Auditing in Tourism	4	150	5
14	Politology	5	150	5
15	Statistics in Tourism	3	180	6
16	The Second Foreign Language	5,6	180	6
17	Turopereytnh	5	150	5
18	Economy Travel Company	5	180	6
19	Rhetoric and Communication Psychology	5	150	5
20	Legal Regulation of Tourism Activities	5	150	5
21	Organization of Excursion Activities	6	120	4
22	Analysis of Tourism Enterprises Activity	7	150	5
23	Organization of Animation Activities	8	150	5
24	Management and Marketing in Tourism	8	120	4
25	Organization of Hotel and Restaurant Management	8	120	4
Total for standard part			3720	124
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukrainian Statehood	1	120	4
2	Ethnocultural	1	90	3
3	Philosophy	2	120	4
4	Ukrainian for Professional Purposes	2	120	4
5	Foreign Language for Professional Purposes	1,2,3,4,5,6,7,8	240	8
6	Labour and Life Safety	4	120	4
7	Legal Culture of Personality	7	60	2
8	Physical Training	1,2,3,4	120	4
Total (Disciplines offered by University)			990	33
2.2. Disciplines offered by students				
2.2.1. Specialization “Green Tourism”				
1	Specialized Tourism (Bases of Green Tourism)	5	120	4
2	Home Economics in the Objects of Green Tourism	6	120	4
3	Organization of Extension Service	6	120	4
4	Tourism Infrastructure	6	120	4
5	Information Systems and Technology in the Tourism Industry	3	120	4
6	Bases of Extension Service	4	120	4
7	Planning and Design of Hotels and Tourist and recreational complexes	7	120	4
8	Planning and Organization of Tourism Business	8	120	4
9	Cultural Ethnographic Tourism	6	120	4
10	Recreational Complexes of the World	6	120	4
11	Standardization, Certification and Licensing in Tourism	7	120	4
12	Logistics in Tourism	7	120	4

13	PR-technology and Branding in Tourism	7	120	4
14	Insurance in Tourism	8	120	4
15	International Tourist Business	8	120	4
16	Business Ethics	4	90	3
<b>Total for Specialization</b>			<b>1890</b>	<b>63</b>
<b>Together</b>			<b>6600</b>	<b>220</b>
<b>3. OTHER TYPES OF TRAINING</b>				
1	Military Training Course		690	23
2	Academic Practice		180	6
3	Production Practice		300	10
<b>Bachelor Thesis writing</b>			<b>60</b>	<b>2</b>
<b>State Attestation</b>			<b>60</b>	<b>2</b>
<b>Total for Specialty (without Military Training Course)</b>			<b>7200</b>	<b>240</b>

## Annotations of disciplines in the curriculum

### 1. Standard academic disciplines

**Economic Theory.** The purpose of discipline is getting future specialists fundamental economic knowledge, forming their logic of economic thinking and economic culture, teaching them basic knowledge and methods of analysis of economic processes, the ability to make informed decisions about economic problems related to their future practitioners.

**Higher Mathematics.** The purpose of discipline is to develop in students the basic mathematical knowledge to solve problems in professional work, analytical thinking skills and mathematical formulation of the economic problems arising from the management. The tasks to be solved in the study subjects, students are acquiring knowledge of the main sections of higher mathematics, proving basic theorems, forming initial skills, perform operations: on vectors, matrices, determinants calculation; solving systems of linear equations; study of forms and properties of direct and planes, curves and surfaces of the second order; border of stepped-exponential functions.

**Information Systems and Technology.** The purpose of teaching is to form future professionals of contemporary information and computer culture, gaining practical skills in modern computer technology and the use of modern information technology to solve various problems in the practice of the specialty.

**History of Ukrainian Culture.** Academic discipline is complex and interdisciplinary nature, logic and methodology of science communication ethnography, archeology, history of Ukraine, philosophy, ethics, linguistics, art, religion and so on. The purpose of discipline is to familiarize students with the main trends and forms of ethnic and cultural development of the Ukrainian people from ancient times to the present, the analysis and understanding of various phenomena and processes of cultural life of Ukraine.

**Geography of Tourism.** Discipline involves the formation of knowledge, skills and competencies to identify the main tourist areas of the world by type of tourism.

**Tourism Geography.** The purpose of discipline is to familiarize students with the methods and features comprehensive study of the tourism industry of countries and regions in the world, according to the main types of tourism and recreational resources, the main tourist centers and regions.

**Ecology.** Generates knowledge of the causes, extent and consequences of a national nature, to find ways of overcoming the current crisis in relations between society and nature, socioecological consciousness, a new ethical relationship between man and nature; skills and abilities to develop management principles.

**Museology.** Discipline creates professional theoretical knowledge in museology, practical skills and competence of the museum and exhibition activities.

**Travel Nandigram.** Academic discipline involves the formation of students from mastering theoretical and practical knowledge about the peculiarities of the regions ability to independently assess the state tourism opportunities some areas, the degree of character development and use in the development of the tourism industry.

**Communicative Management.** Building knowledge and skills on the priorities in the choice of tourists travel psychodiagnostics tourists formation of competences communication in professional and business topics, building communication schemes.

**The Organization of Tourist Trips.** Entry on the theoretical competence, professional knowledge and practical skills on the conditions and principles of the program, geography, technology and organization of tourist trips, organizing transport and tours, software maintenance, rules for use of travel formalities, travel security travel more.

**Fundamentals of Tourist Knowledge.** The course is to study scientific bases of tourist knowledge, formation of students' knowledge and skills in tourist knowledge conditions for the evaluation of tourism resources, tourism functions and preconditions implementation of tourism activities.

**Accounting and Auditing in Tourism.** The main purpose of the discipline is to build theoretical knowledge and practical skills in organization and accounting and auditing financial statements and the use of their results as information base effective decision-making in tourism. The main objective of discipline is thorough general economic and accounting and audit training and mastering their principles, means, methods and techniques of accounting activities of travel agencies and audit their financial statements.

**Politology.** The purpose of teaching is to create a coherent, logical, coherent system of knowledge about politics as a social phenomenon. Discipline tasks: to master basic concepts and categories of political science at play and interpretation for practical application and implementation process for future professional activities; understand the nature of political phenomena and processes.

**Statistics in Tourism.** The course equips students with knowledge, skills and competencies in the use of statistical techniques to quantify the effects of tourism. The main tasks to be solved in the process of teaching include: the collection, verification and evaluation of statistical information, development of statistical forms; construction materials and grouping of statistical monitoring, identifying relationships between different phenomena and processes, establishing its structure; calculating machines generalizing statistical parameters (absolute, relative, middle) and their economic interpretation.

**The Second Foreign Language.** Study subjects deepens the students' communicative competence in another foreign language, such as the use of skills, abilities and knowledge of a foreign language in the course of business relations with other countries on various professional matters related to professional activities in tourism, preparation for participation in international conferences, projects and discussions.

**Turopolity.** Acquiring knowledge and systematic thinking on the organization of the tour operator business, charts its progress and implementation of the formation program of tourist services, documentary ensure the creation, acquisition, implementation planning tours and tour packages, tourist service organization.

**Economy Travel Company.** The task of the course is to provide theoretical knowledge and practical skills in economy travel company and formation of students' capacity for independent creative thinking and solving practical economic problems.

**Rhetoric and Communication Psychology.** The discipline involves the development of thinking, language and skills, mastering effective forms of persuasive communication for unusual situations of life and professional communication, formation and skills of public speaking, developing skills to create and deliver public speeches.

**Legal Regulation of Tourism Activities.** Generates the students a theoretical basis and practical skills necessary to use modern legal instruments of tourism activities.

**Organization of Excursion Activities.** Provides formation of students' theoretical, professional knowledge and practical skills in planning and organizing excursions, carrying out of excursions.

**Analysis of Tourism Enterprises Activity.** The purpose of discipline is mastering theoretical positions from the analysis and evaluation of tourism enterprises and domain practical skills to use this knowledge for management decisions to improve enterprise efficiency.

**Organization of Animation Activities.** Generates the students: a theoretical basis and practical skills of animation tourist services in today's global and national tourism business; understanding of the need to use different national traditions, festivals, customs, rituals and other forms of Ukrainian folk art to improve the organization of leisure travelers; apply various animation service programs to enhance the attractiveness of the national tourism product, building motivation to implement them in various stages of service of domestic and foreign tourists.

**Management and Marketing in Tourism.** Mastering the latest theoretical knowledge on the management of tourism organizations and acquire practical skills for building management and marketing system such organizations, which would ensure their effective functioning in a competitive and changing environment management.

**Organization of Hotel and Restaurant Management.** Formation of theoretical knowledge and competencies for the organization of economic activity at the enterprises of hotel and restaurant management.

## **2. Elective academic disciplines**

### ***2.1. Disciplines offered by University***

Annotations of disciplines "History of Ukrainian Statehood", "Ethnocultural", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language for Professional Purposes", "Physical Training", "Labour and Life Safety", "Legal Personal Culture of Personality" see Section 2.1.

### ***2.2. Disciplines offered by students***

#### ***2.2.1. Specialization "Green Tourism"***

**Specialized Tourism (Bases of Green Tourism).** Organization of Rural Tourism. The purpose of discipline is to familiarize students with theoretical achievements in the sphere of green tourism, analyze the experience of its organization in the European Union, to outline the current state and tendencies of rural tourism in Ukraine to teach students to identify the preconditions and stages of development of green tourism in the regions of Ukraine.

**Home Economics in the Objects of Green Tourism.** The main objectives of the course is to study the characteristics of households in Ukraine, problems and prospects of formation of home economics in green tourism estates.

**Organization of Extension Service.** Academic discipline provides knowledge on the organization of the consultation process, licensing and certification consulting activities, creation of consulting agencies.

**Tourism Infrastructure.** The course aims to learn the theory of infrastructure of tourism as an essential part of the market economy, the practical ability to control its activities to promote, storage and sale of goods and services that meet the needs of customers, the ability to find and implement solutions for intensification and efficiency of the sector.

**Information Systems and Technology in the Tourism Industry.** Involves the formation of the necessary theoretical knowledge and practical skills to build modern information systems, their management and the introduction of modern information technologies into practical tourist activities.

**Bases of Extension Service.** The course introduces students to the basic concepts, history of formation and functioning of consulting activities in the world and Ukraine. As a result, the discipline future specialist learns about: the essence of the place and role of extension services; the most effective methods of information dissemination; psychological and ethical aspects of information and consultancy activities.

**Planning and Design of Hotels and Tourist and Recreational Complexes.** The purpose of discipline is to study the basic design principles of hotel management, training specialist, who will have the knowledge associated with resolving design issues in service.

**Planning and Organization of Tourism Business.** The purpose of discipline is to master the principles and methods of planning in tourism business, learn to design and simulate future travel companies find optimal resource mix of tourism businesses to ensure its effectiveness.

**Cultural and Ethnographic Tourism.** Seeks to learn and master the theoretical knowledge and practical skills with theory and methodology Regional tourism organizations, depending on the needs of consumers of tourism services.

**Recreational Complexes of the World.** The purpose of discipline is to develop recreational culture and knowledge of financial organization resorts in the world, its qualitative and quantitative meet the needs of man and society.

**Standardization, Certification and Licensing in Tourism.** The purpose of discipline is to study the characteristics of standardization, certification and licensing of tourism in Ukraine.

**Logistics in Eourism.** The course provides knowledge about the nature, methods and rules for the organization of logistics in tourism.

**PR-technology and Branding in Tourism.** Discipline involves building knowledge and skills for the development of fashion concepts, public relations management system for travel agencies, hotels and tourism product promotion in the tourism market.

**Insurance in Tourism.** Formation of knowledge of the theory and practice of insurance in tourism in domestic and foreign practice.

**International Tourist Business.** The course aims to provide future specialists in tourism-depth knowledge of current trends in international tourism.

**Business Ethics.** Academic discipline aims to provide knowledge about the moral requirements for business relationships of modern technological requirements for the basic forms of business communication - conversations and negotiations, official meetings, etc., on moral principles, norms and rules of etiquette.