NATIONAL UNIVERSITY OF LIFE
AND ENVIRONMENTAL SCIENCES OF UKRAINE

BACHELOR CURRICULA
AND
TRAINING PROGRAMS

2020-2021
academic year

2020
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1. General Information About
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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
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 No 448, Nizhyn Agricultural College (Chernihiv region) joined National Agricurical University.

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

Eventually, according to the results of accreditation, Irpin, Nemishayevo, Zalishchyky and Boyarka Technical Schools received the status of colleges.
According to the Resolutions of the Cabinet of Ministers of Ukraine from 6 May 2001 No 434 and from May 16, 2001 No 508, Berezhany and Nizhyn agrotechnical institutes were organized. According to the order of Cabinet of Ministers of Ukraine from August 8, 2001, № 327 of the Ministry of Agrarian Policy of Ukraine the Institute of post-diploma education of managers and specialists of AIC was transferred to the National Agrarian University. Since 2003, the Ukrainian laboratory of quality and safety of AIC products was organized in the National Agrarian University. In 2004, the 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; Prybrehzne 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 – 43 specialties and almost 50 educational programs;
- Specialist – 13 specialties;
- Master – 37 specialties and almost 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;
• 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.
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; Agroengineering; Agronomy; Automation and Computer Integrated Technologies; Biotechnology and Bioengineering; Computer Engineering; Computer Science; Construction and Civil Engineering; Cybersecret; Ecology; Economy; Entrepreneurship, Trade and Exchange Activities; Finance, Banking and Insurance; Food Technologies; Forestry Management; Geodesy and Land Management; Heat power engineering; Horticulture and Viticulture; Hotel-restaurant business; Sectoral engineering; International relations, social communications and regional studios; Journalism; Law; Management; Marketing; Park and Gardening Management; Philology (Germanic languages and literature (translation included)); Physical Education and Sports; Plant Protection and Plant Quarantine; Power Engineering, Electrical Engineering and Electrical Mechanics; Professional Education; Psychology; Public Health; Public Management and Administration; Social Work; Software Engineering; Technology of Production and Processing of Livestock Products; Tourism; Transport Technologies (on Motor Transport); Veterinary Medicine; Water Bioresources and Aquaculture; Woodworking and Furniture Technologies.

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 sixth qualification level

<table>
<thead>
<tr>
<th>Level</th>
<th>Knowledge</th>
<th>Skills</th>
<th>Communication</th>
<th>Autonomy and responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Conceptual knowledge acquired in the process of training and professional activity, including certain knowledge of modern achievements</td>
<td>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</td>
<td>Presenting information, ideas, problems, solutions and one’s own experience in the field of professional activity to specialists and non-specialists</td>
<td>Management of complex projects or actions, responsibility for decision-making in unpredictable conditions</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>№</th>
<th>Code, Specialty</th>
<th>Departments that provide Bachelor degree training and licensed number (full-time/part-time, persons)</th>
<th>Faculties and ERI of the basic institution</th>
<th>SS of NULESU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>015 Professional Education</td>
<td>Humanitarian Pedagogical (50/-)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>017 Physical Education and Sports</td>
<td>Humanitarian Pedagogical (50/-)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>035.01 Philology (Germanic languages and literature (including translation), first - English)</td>
<td>Humanitarian Pedagogical (90/5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>035.04 Philology (Germanic languages and literature (including translation), first – German)</td>
<td>Humanitarian Pedagogical (25/5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>051 Economy</td>
<td>Economic (100/80)</td>
<td></td>
<td>Berezhany agrotechnical institute (40/200)</td>
</tr>
<tr>
<td>6</td>
<td>053 Psychology</td>
<td>Humanitarian Pedagogical (75/25)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>061 Journalism</td>
<td>Humanitarian Pedagogical (50/-)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1 | 2 | 3 | 4 |
--- | --- | --- | --- |
8 | 071 Accounting and Taxation | Economic (150/140) | Berezhany agrotechnical institute (60/60) Nizhyn agrotechnical institute (40/25) |
9 | 072 Finance, Banking and Insurance | Economic (130/90) | – |
10 | 073 Management | Agrarian Management (150/60) | Nizhyn agrotechnical institute (30/25) |
11 | 075 Marketing | Agrarian Management (60/60) | – |
12 | 076 Entrepreneurship, Trade and Exchange Activities | Economic (50/25) | – |
13 | 081 Law | Law (160/90) | – |
14 | 101 Ecology | Plant Protection, Biotechnology and Ecology (100/50) | Berezhany agrotechnical institute (30/30) |
15 | 121 Software Engineering | Information Technologies (75/25) | – |
16 | 122 Computer Science and Information Technologies | Information Technologies (75/25) | – |
17 | 123 Computer Engineering | Information Technologies (75/25) | – |
18 | 125 Cybersecret | Information Technologies (50/-) | – |
19 | 133 Sectoral engineering | Construction and Design (170/120) | – |
20 | 141 Power Engineering, Electrical Engineering and Electrical Mechanics | Energetics, Automation and Energy-saving (175/125) | Berezhany agrotechnical institute (75/100) Nizhyn agrotechnical institute (60/60) Nemishayevo Agrotechnical College (50/50) |
21 | 144 Heat power engineering | Energetics, Automation and Energy-saving (50/-) | – |
22 | 151 Automation and Computer Integrated Technologies | Energetics, Automation and Energy Saving (70/15) | – |
23 | 162 Biotechnology and Bioengineering | Plant Protection, Biotechnology and Ecology (100/50) | – |
24 | 181 Food Technologies | Food Technologies and Quality Management of AIC Products (150/50) | – |
25 | 187 Woodworking and Furniture Technologies | Forestry, Park and Gardening Management (50/100) | – |
26 | 192 Construction and Civil Engineering | Construction and Design (50/50) | – |
27 | 193 Geodesy and Land Management | Land Management (110/65) | – |
28 | 201 Agronomy | Agrobiology (220/90) | – |
29 | 202 Plant Protection and Plant Quarantine | Plant Protection, Biotechnology and Ecology (75/50) | – |
30 | 203 Horticulture and Viticulture | Agrobiology (60/30) | – |
31 | 204 Technology of Production and Processing of Livestock Products | Livestock and Water Bioresources (125/60) | – |
32 | 205 Forestry Management | Forestry, Park and Gardening Management (215/200) | – |
33 | 206 Park and Gardening Management | Forestry, Park and Gardening Management (100/60) | Berezhany agrotechnical institute (30/30) |
34 | 207 Water Bioresources and Aquaculture | Livestock and Water Bioresources (75/75) | –
Table 1.1 Continuation

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
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<tbody>
<tr>
<td>35</td>
<td>208</td>
<td>Agroengineering</td>
<td>Mechanics – Technology (200/200)</td>
<td>Berezhany agrotechnical institute (75/100) Nizhyn agrotechnical institute (75/75) Nemishayevo Agrotechnical College (50/40)</td>
</tr>
<tr>
<td>36</td>
<td>211</td>
<td>Veterinary Medicine</td>
<td>Veterinary Medicine (300/-)</td>
<td>–</td>
</tr>
<tr>
<td>37</td>
<td>229</td>
<td>Public Health</td>
<td>Food Technologies and Quality Management of AIC Products (50/-)</td>
<td>–</td>
</tr>
<tr>
<td>38</td>
<td>231</td>
<td>Social Work</td>
<td>Humanitarian Pedagogical (50/50)</td>
<td>–</td>
</tr>
<tr>
<td>39</td>
<td>241</td>
<td>Hotel-restaurant business</td>
<td>Continuous education and tourism (90/-)</td>
<td>–</td>
</tr>
<tr>
<td>40</td>
<td>242</td>
<td>Tourism</td>
<td>Continuous education and tourism (70/20)</td>
<td>–</td>
</tr>
<tr>
<td>41</td>
<td>275</td>
<td>Transport Technologies (on Motor Transport)</td>
<td>Mechanics – Technology (100/100)</td>
<td>Nizhyn agrotechnical institute (30/-)</td>
</tr>
<tr>
<td>42</td>
<td>281</td>
<td>Public Management and Administration</td>
<td>Continuous education and tourism (50/-)</td>
<td>–</td>
</tr>
<tr>
<td>43</td>
<td>291</td>
<td>International relations, social</td>
<td>Humanitarian Pedagogical (95/5)</td>
<td>–</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>ERI, faculty</th>
<th>Specialty</th>
<th>Educational Program</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>ERI of Energetics, Automatics and Energy Saving</td>
<td>Automation and Computer Integrated Technologies</td>
<td>Automation and Computer Integrated Technologies</td>
</tr>
<tr>
<td>ERI of Forestry and Garden-Park Management</td>
<td>Woodworking and Furniture Technologies</td>
<td>Woodworking and Furniture Technologies</td>
</tr>
<tr>
<td>ERI of Continuous Education and Tourism</td>
<td>Management</td>
<td>Management of innovative activity</td>
</tr>
<tr>
<td>Agrobiology faculty</td>
<td>Agronomy</td>
<td>Agronomy</td>
</tr>
<tr>
<td></td>
<td>Agrochemistry and Soil Science</td>
<td>Agrochemistry and Soil Science</td>
</tr>
<tr>
<td></td>
<td>Selection and genetics of agricultural crops</td>
<td>Selection and genetics of agricultural crops</td>
</tr>
<tr>
<td></td>
<td>Agrohimservice in precision agricultural production</td>
<td>Agrohimservice in precision agricultural production</td>
</tr>
<tr>
<td></td>
<td>Horticulture and Viticulture</td>
<td>Horticulture and Viticulture</td>
</tr>
<tr>
<td>Economic faculty</td>
<td>Economy</td>
<td>Economy</td>
</tr>
<tr>
<td></td>
<td>Economics of enterprise</td>
<td>Economics of enterprise</td>
</tr>
<tr>
<td></td>
<td>Applied Economics</td>
<td>Applied Economics</td>
</tr>
<tr>
<td></td>
<td>Accounting and audit</td>
<td>Accounting and audit</td>
</tr>
<tr>
<td></td>
<td>Entrepreneurship, Trade and Exchange Activities</td>
<td>Entrepreneurship, Trade and Exchange Activities</td>
</tr>
<tr>
<td></td>
<td>Finance, Banking and Insurance</td>
<td>Finance and credit</td>
</tr>
</tbody>
</table>
### Table 1.2 Continuation

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Humanitarian Pedagogical faculty</strong></td>
<td>Management</td>
<td>Management of educational institution</td>
</tr>
<tr>
<td></td>
<td>Educational, Pedagogical Sciences</td>
<td>Pedagogy of higher school</td>
</tr>
<tr>
<td></td>
<td>Social Work</td>
<td>Social Work</td>
</tr>
<tr>
<td></td>
<td>Philology (Germanic languages and literature (translation inclusive), first – English)</td>
<td>English and second foreign language</td>
</tr>
<tr>
<td></td>
<td>Philology (Germanic languages and literature (translation inclusive), first – German)</td>
<td>German and second foreign language</td>
</tr>
<tr>
<td><strong>Mechanics – Technology faculty</strong></td>
<td>Agricultural Engineering</td>
<td>Agricultural Engineering</td>
</tr>
<tr>
<td></td>
<td>Transport Technologies (on Motor Transport)</td>
<td>Transport Technologies (on Motor Transport)</td>
</tr>
<tr>
<td></td>
<td>Motor Transport</td>
<td>Motor Transport</td>
</tr>
<tr>
<td><strong>Faculty of Agrarian Management</strong></td>
<td>Management</td>
<td>Administrative management</td>
</tr>
<tr>
<td></td>
<td>Marketing</td>
<td>Marketing</td>
</tr>
<tr>
<td></td>
<td>Veterinary Hygiene, Sanitation and Examination</td>
<td>Veterinary Hygiene, Sanitation and Examination</td>
</tr>
<tr>
<td><strong>Faculty of Veterinary Medicine</strong></td>
<td>Veterinary Medicine</td>
<td>Veterinary Medicine</td>
</tr>
<tr>
<td><strong>Faculty of Plant Protection, Biotechnology and Ecology</strong></td>
<td>Biotechnology and Bioengineering</td>
<td>Environmental biotechnology and bioenergetics</td>
</tr>
<tr>
<td></td>
<td>Ecology</td>
<td>Ecological control and audit</td>
</tr>
<tr>
<td></td>
<td>Plant Protection and Plant Quarantine</td>
<td>Plant Protection</td>
</tr>
<tr>
<td><strong>Faculty of Land Management</strong></td>
<td>Geodesy and Land Management</td>
<td>Geodesy and Land Management</td>
</tr>
<tr>
<td><strong>Faculty of Information Technology</strong></td>
<td>Economy</td>
<td>Economic cybernetics</td>
</tr>
<tr>
<td></td>
<td>Computer Science</td>
<td>Information managing systems and technologies</td>
</tr>
<tr>
<td></td>
<td>Software Engineering</td>
<td>Computer ecological and economic monitoring</td>
</tr>
<tr>
<td></td>
<td>Computer Engineering</td>
<td>Information Systems Software</td>
</tr>
<tr>
<td><strong>Faculty of Construction and Design</strong></td>
<td>Construction and Civil Engineering</td>
<td>Construction and Civil Engineering</td>
</tr>
<tr>
<td></td>
<td>Industrial Mechanical Engineering</td>
<td>Machinery and equipment of agricultural production</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Equipment of forest complex</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technical Service of Machinery and equipment of agricultural production</td>
</tr>
<tr>
<td><strong>Faculty of Livestock Science and Water Bioresources</strong></td>
<td>Water Bioresources and Aquaculture</td>
<td>Water Bioresources and Aquaculture</td>
</tr>
<tr>
<td></td>
<td>Technology of Production and Processing of Livestock Products</td>
<td>Technology of Production and Processing of Livestock Products</td>
</tr>
<tr>
<td><strong>Faculty of Alimentary Technologies and Managing of Quality of Products of ASE</strong></td>
<td>Metrology and Information and Measurement Technique</td>
<td>Quality, Standardization and Certification</td>
</tr>
<tr>
<td></td>
<td>Food Technologies</td>
<td>Technologies of storage, preserving and reprocessing of meat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technologies of storage and reprocessing of aquatic bioresources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nutritionology</td>
</tr>
<tr>
<td><strong>Law faculty</strong></td>
<td>Law</td>
<td>Law</td>
</tr>
</tbody>
</table>
1.4. Admission requirements

Admission to full-time study and by correspondence on Bachelor degree programs at National University of Life and Environmental Sciences of Ukraine is conducted according to the current admission requirements approved by the Academic Council of the University.

The educational activity is provided according to the license of the Ministry of Education and Science of Ukraine, serial number AE № 636425 on 20.05.2015.

Terms for submission of application forms and documents, competitive selection and enrolment for full-time study and by correspondence by the state order

<table>
<thead>
<tr>
<th>Dates for submission of documents based on CGSE JS CGSE JS</th>
<th>Entrance exams on the basis of CGSE JS</th>
<th>Rating list CGSE JS</th>
<th>Terms for applicants to meet the enrolment requirements by 18:00 31.07.2020 at the latest 04.08.2020</th>
<th>Enrolment by state order by 12:00 05.08.2020 at the latest</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.- 30.07. 2020</td>
<td>09.- 11.07. 2020</td>
<td>27.07. 2020 at the latest 31.07. 2020 at the latest</td>
<td>by 18:00 31.07.2020 by 18:00 04.08.2020</td>
<td></td>
</tr>
<tr>
<td>09.- 11.07. 2020</td>
<td>27.07. 2020 at the latest 31.07. 2020 at the latest</td>
<td>by 18:00 31.07.2020 by 18:00 04.08.2020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.07. 2020 at the latest 31.07. 2020 at the latest</td>
<td>by 18:00 31.07.2020 by 18:00 04.08.2020</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

* applicants admitted based on the entrance examinations

NULES of Ukraine trains specialists in the specialty 211 "Veterinary Medicine" (Veterinary support of troops), the deadline for submission of documents is on July 16th, 2020 by 18.00, entrance examinations - July 17th, 2020, publication of the rating list – at 12.00 July 18th, 2020, meeting the enrolment requirements – 12.00 July 19th, 2020 and terms of enrolment – 12.00 July 20th, 2020.

Applicants submit the paper application form and the following documents:
- Two copies of personal ID (1st, 2nd pages and place of registration);
- a copy of a state document of previously obtained education (educational and qualification) level on which the entrance is done, and a copy of the appendix to it;
- a copy of the certificate(s) of the Ukrainian Centre for Educational Quality Assessment (for applicants with complete general secondary education and educational and qualification level of Junior Specialist);
- 4 color photos 3x4 cm;
- two copies of personal identification number.
- a copy of military registration card (for conscripts);
- medical certificate of 086/o standard.

All copies of documents are submitted by applicants in person to NULES of Ukraine and are certified by the original documents by Admission Committee. Copies without the original documents are not considered.

Copies of documents certifying special conditions for an applicant to participate in competitive selection to obtain higher education on the basis of Complete General Secondary Education in accordance with the admission requirements or admission by quotes are submitted in paper and electronically by an applicant in person within the specified dates. Applicants who fail to submit in due time the documents certifying special conditions for participation in competitive selection to obtain higher education based on Complete General Secondary Education are not entitled to get these special conditions.
Applicants for a Bachelor’s degree on the basis of complete general secondary education for full-time study and by correspondence **submit electronic applications only**. Applicants may submit up to five applications on state and regional order. The number of applications for participation in the competition for study at the expense of individuals or legal entities is not limited.

While filling in application forms for participation in competitive selection, applicants specify in each application form the priority of this form in relation to the other application forms submitted by them, where “1” being the highest priority.

In 2020, the certificates of External Independent Evaluation issued in 2017, 2018, 2019 and 2020 are recognized, except grades in English, French, German and Spanish. In case the foreign language is the competitive subject, an applicant can submit the grade in the certificates of External Independent evaluation obtained in 2018, 2019 and 2020.

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

<table>
<thead>
<tr>
<th>Specialty (Specialization)</th>
<th>List of Competitive subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economics</strong> (<em>Economy of Enterprise, Economic Cybernetics, Digital Economics</em>);</td>
<td>Foreign Language / Geography</td>
</tr>
<tr>
<td>Accounting and taxation (<em>Accounting and Audit</em>);</td>
<td></td>
</tr>
<tr>
<td>Finance, Banking and Insurance (<em>Finance and Credit</em>);</td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>Mathematics</td>
</tr>
<tr>
<td>Marketing</td>
<td>Ukrainian language and literature</td>
</tr>
<tr>
<td>Entrepreneurship, trade and stock activity</td>
<td></td>
</tr>
<tr>
<td><strong>Software Engineering; Computer Science; Computer Engineering; Cybersecurity;</strong></td>
<td>Physics / Foreign Language</td>
</tr>
<tr>
<td><strong>Construction and Civil engineering; Industry Engineering</strong> (<em>Industry Engineering, Robotics Systems and Complexes</em>);</td>
<td></td>
</tr>
<tr>
<td><strong>Power Engineering, Electrical Engineering, and Electromechanics; Heat and Power Engineering; Automation and Computer Integrated Technologies; Transport Technologies</strong> (<em>road transport</em>)</td>
<td></td>
</tr>
<tr>
<td><strong>Agro-engineering</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Food Technologies</strong> (<em>Food Technologies, Restaurant Technology</em>); Forestry; Landscape Gardening</td>
<td></td>
</tr>
<tr>
<td><strong>Wood processing and Furniture Technology</strong></td>
<td></td>
</tr>
<tr>
<td>Geodesy and Land Management</td>
<td>Geography/ History of Ukraine</td>
</tr>
<tr>
<td>Psychology</td>
<td>Biology / Foreign Language</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Public Management and Administration</td>
<td>Foreign language / History of Ukraine</td>
</tr>
<tr>
<td>Ecology</td>
<td>Mathematics / Chemistry / Geography</td>
</tr>
<tr>
<td>Biotechnology and Bioengineering; Agronomy; Protection and Quarantine of plants; Horticulture and Viticulture Technology of Production and Processing of Livestock Products; Water Bioresources and Aquaculture; Veterinary Medicine (Veterinary Support of Troops); Veterinary Hygiene, Sanitation and Expertise</td>
<td>Biology</td>
</tr>
<tr>
<td>Physical Education and sport</td>
<td>Chemistry / Mathematics</td>
</tr>
<tr>
<td>Professional education (Agricultural production, processing of agricultural products and food technology)</td>
<td>Creative competition</td>
</tr>
<tr>
<td></td>
<td>Chemistry / Foreign Language</td>
</tr>
<tr>
<td>Journalism; Law; Social work</td>
<td>Mathematics / Foreign Language</td>
</tr>
<tr>
<td>Philology (Germanic languages and literature (translation included) Main language – English; Philology (Germanic languages and literature (translation included) Main language – German</td>
<td>History of Ukraine / Geography</td>
</tr>
<tr>
<td>Tourism</td>
<td>Mathematics / Geography</td>
</tr>
<tr>
<td>Hotel and Catering Business</td>
<td>History of Ukraine / Mathematics</td>
</tr>
<tr>
<td>International Relations, Public Relations and Regional Studios</td>
<td>Biology / chemistry</td>
</tr>
<tr>
<td>Public health (Nutrition of healthy eating)</td>
<td>Physics / Mathematics</td>
</tr>
</tbody>
</table>

In order to obtain a bachelor’s degree on the basis of complete general secondary education, the competitive score is calculated by adding grades of external independent assessment in competitive subjects (entrance exams) specified in the table of competitive subjects in the certificates of the Ukrainian Center for Educational Quality Assessment (entrance examinations), the average score of the certificate of complete secondary education and a score for successful completion of the training courses in NULES of Ukraine or a contest of NULES of Ukraine in the year of admission (for specialties defined by the List of specialties that get special support) taking into account the inalienable valuable coefficient according to the Admission Requirements of NULES of Ukraine.

Finally, the competitive score is multiplied by the branch and rural coefficients.

The branch coefficient is equal to 1.02 for applications submitted with the priority 1 and 2 in the specialty (specialization), which are provided in the List of specialties that have special support; 1.00 - in other cases;
The rural coefficient is equal to 1.02 for persons registered in villages and who obtained complete general secondary education in educational institutions located in rural areas in the year of entrance (1.05 - for specialties (specializations), which are provided in the List of specialties of special support and specialties in the field of knowledge 21 "Veterinary Medicine", 1.00 - in other cases.

Winners (persons awarded with diplomas of I-III degrees) of the IV stage of the National Ukrainian Student Contests in the year of entrance in basic subjects, winners of the III stage of the National Ukrainian contest-defense of research works of students - members of the Small Academy of Sciences of Ukraine in the year of admission in the specialties’ defined by the List of specialties which get special support, get the final score 10.

Participants of National Ukrainian contest of NULES of Ukraine aimed at professional guidance of applicants on the basis of complete general secondary education in the specialties defined by the List of specialties that are given special support, obtain additional scores to the certificate of External Independent Evaluation on one related subject within the range from 1 to 20 points.

NULES of Ukraine offers training courses for External Independent Evaluation on the comprehensive subjects. After completing the course program, the participants can obtain up to 10 additional points when they apply for the specialties defined by the List of specialties', which are given special support.

For applicants on the base of obtained educational and qualification level of a junior specialist in the specialty 051 "Economics", 071 "Accounting and Taxation", 072 "Finance, Banking and Insurance", 073 "Management", 075 "Marketing" the competitive score is calculated by the amount of points in the EIT certificate in Ukrainian language and literature, mathematics (mathematics or history of Ukraine for study at the expense of individuals and / or legal entities) (not less than 100 points) and the result of professional entrance examination in NULES of Ukraine; for all other specialties the calculation is based on the sum of the points in the EIT certificate in the Ukrainian language and literature (not less than 100 points) and the result of the professional entrance examination in NULES of Ukraine. Applicants who got at least 124 points on the professional entrance exam can participate in the competition in all specialties.

Persons who submitted application forms in paper and / or electronic form, and participate in the competitive selection for state and regional orders after the admission committee decides on the recommendation for enrollment according to the terms, are obliged to meet the requirements for enrollment in state and regional order, namely: to submit personally the originals of the document on educational (educational-qualification) level and appendix to it, certificates of external independent assessment and / or other documents according to the Rules of admission to the selection committee of NULES of Ukraine. Applicants submitted applications in electronic form are also required to sign their own application form printed out by the selection committee.

Persons who did not fulfilled the requirements for enrollment in the state or regional order in due time lose the right to enroll (transfer) to study on the state and regional order in the current year.
Applicants submit the documents to the address:

03041, Kyiv-41, 19, Generala Rodimtseva st., building № 1.
How to get to the Admission Committee:
from the metro station “Lybidska”, or “Teremky” take bus 212.
Documents are accepted daily from 9:00 to 18:00, on Saturday and Sunday- from 9:00 to 14:00.
lunch break – 13:00-14:00

Phone: (044) 258-42-63, 527-83-08
(098) 660-08-48; (063) 804-49-93

e-mail: vstup@nubip.edu.ua

For more information, join facebook.com/vstupnubip
or see the University official website http://www.nubip.edu.ua.
1.5. Organization of educational process

There are the following forms of studying at National University of Life and Environmental Sciences of Ukraine:
- full time study;
- 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, considering the benefits required by law for persons who combine work with study.

An educational 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 can 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 bachelor-bachelor-master”. 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 compulsory and optional 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.

In the curriculum, the volumes of the disciplines are distributed as follows:

- **Compulsory** - 60% of the total student workload (their list, scope and forms of certification are determined by the standard of higher education, in accordance with the requirements of the Ministry of Education and Science of Ukraine within a relevant specialty);

- **Compulsory by the decision of the Academic Council of the University** - 15% of the total student workload (their list, forms of study (classroom or independent) and certification are determined by the Academic Council of the university). Such components are studied by the bachelor students of the I-II years of study;

- **Optional** - not less than 25% of the total student workload. Such disciplines are studied by undergraduate bachelor students of the III-IV years of study.

  Optional disciplines are divided into:
  - disciplines of free choice in the specialty (educational program);
  - disciplines of free choice according to students’ preferences.

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 educational 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 Test 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.

Exam (course exam) aim to assess students’ knowledge of the academic disciplines, their abilities to apply knowledge and skills obtained to solve practical problems in their professional activities.

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

Examination results are scored according to the national four-grade scale – “excellent”, “good”, “satisfactory”, “unsatisfactory”. Tests results are scored by the national grades “Accepted” and “Not Accepted”.

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 (1st year); 28 hours (2nd year); 26 hours (3rd year); 24 hours (4th year); 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” 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 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 2-3 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 1.3. Ratio between student’s rating and the Ukrainian National grades

<table>
<thead>
<tr>
<th>Student’s rating, points</th>
<th>The Ukrainian National Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exams, differential tests</td>
</tr>
<tr>
<td>90 – 100</td>
<td>Excellent</td>
</tr>
<tr>
<td>74 – 89</td>
<td>Good</td>
</tr>
<tr>
<td>60 – 73</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>00 – 59</td>
<td>Unsatisfactory</td>
</tr>
</tbody>
</table>

|                          | Tests                        |
| 90 – 100                 | Accepted                     |
| 74 – 89                  | Accepted                     |
| 60 – 73                  | Accepted                     |
| 00 – 59                  | Not Accepted                 |

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 is recorded into an examination record, a student grade record and a student assessment register (see Table 1.3).

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 (see Table 1.3).

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, overall, 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.

To promote mobility of students and faculty, academic disciplines are taught in the English language at NULES of Ukraine. Most disciplines are taught in English for special groups of students in sixteen bachelor programs and the corresponding specialties of master’s degree training programs:
• Agronomy;
• Biotechnology (Ecological Biotechnology and Bioenergetics);
• Veterinary Medicine;
• Industrial Mechanical Engineering;
• Geodesy and Land Management;
• Ecology;
• Economy;
• Plant Protection and Plant Quarantine;
• Management;
• Law;
• Accounting and Taxation;
• Economic Cybernetics;
• Social Work;
• Construction and Civil Engineering;
• Philology;
• Finance, Banking, and Insurance,
which 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 30 specialties:
• Wood Processing and Furniture Manufacturing Technologies;
• 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;
• Marketing;
• Management;
• Accounting and Taxation;
• Law;
• Professional Education;
• Horticulture and Viticulture;
• Landscape-Park Management;
• Social Work;
• Technology of Production and Processing of Livestock Products;
• Transport Technologies (Motor Transport);
• Tourism;
• 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).
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 19.10.2019.

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 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 “Zalischyky College of Agriculture named after E.Khraplyvyi” and ERF SS of NULES of Ukraine “Nizhyn Agrotechnical Institute” (Chemihiv 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 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 О.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 (Chech), 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

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

1372 scientific and pedagogical specialists work in the basic institution of the University (Kyiv). 84 % of them have scientific degrees and academic titles. The average age of the academic staff is 47.

At the request of the Ministry of Education and Science of Ukraine, to simplify the licensing procedure, currently information on all teaching and research staff of the University is fully entered into the Unified State Electronic Database on Education.

Qualitative composition of scientific and pedagogical staff:
- Doctor of Sciences and professors – 270;
- Candidates of Sciences and associate professors – 890;
  including:
  - Academicians of the NAAS of Ukraine – 11;
  - Academicians of the NAPS of Ukraine – 1;
  - Correspondent Members of the NAS of Ukraine – 3;
  - Correspondent Members of the NAAS of Ukraine – 15;
Correspondent Members of the NAPS of Ukraine – 1;
Honored Workers of Science and Technology of Ukraine – 20;
Honored Workers of Education of Ukraine – 24;
Honored Workers of Higher School of Ukraine – 1;
Honored Inventors of Ukraine – 2;
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 Journalists of Ukraine – 2;
Honored Workers of Physical Education and Sports of Ukraine – 1;
Honored Workers of Culture of Ukraine – 2;
Honored Artists of Ukraine – 2;
Honored Coaches of Ukraine – 1;
People’s Artists of Ukraine – 4;
Masters of Sports of Ukraine – 11.

The scientific and academic staff of a higher qualification take post-graduate and doctoral courses. Currently, 397 postgraduate students (including 111 part-time) and 25 seekers are taking postgraduate programs, 20 candidates are doing doctoral programs.

The work of 20 specialized scientific boards on dissertation defense in 49 specialties of 7 Field of Science, of them 16 specialized scientific boards - for a degree of Doctor of Sciences in 43 specialties. Organized and coordinated by the educational and scientific center of training and attestation of the academic stuff of a higher category. The faculty members and postgraduate students submitted and defended 22 dissertations to get a degree of Doctor of Sciences and 53 dissertations to get a degree of Candidate of Sciences in 2019.

In 2019, 23 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: Berezhany Agrotechnical Institute and Berezhany 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).

**Internal academic resources of the University**

- The website of NULES of Ukraine: nubip.edu.ua
- Teamwork environment: agrowiki.nubip.edu.ua
- Educational portal: video.nubip.edu.ua
- Agrarian portal: agroua.com
- The system of video conferences: vcf.nubip.edu.ua
- The system of video conferences: vcf.nubip.edu.ua
- Institutional repository: elibrary.edu.ua
- Virtual desktop

**External resources**

- Teamwork services: Google, MS Office365
- Social networks
- Scientific information database: EBSCO
- Web resources: MOOOCs (MS Imagine Academy, Cisco Academy, Google)

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

- electronic dean's office management system;

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

- Wikiportal (agrowiki.nubip.edu.ua), where scholars, educators and students place thematic articles on the problems of research, standards (Codex Alimentarius, ISO, JMA, BS), portfolios;
Video Portal (video.nubip.edu.ua), which houses educational videos, video lectures and other video resources produced at the University and used in training, educational and cultural activities;

Library repository on DSpace platform;

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

On-line system UNPLAG to 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", "Bobrovystsia College of Economics and Management named after O.Mainova", "Zalishchky Agricultural College named after Ye. Khraplyvy", "Berezhany Agrotechnical Institute", "Irpin 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 ensures the implementation of users’ needs in obtaining the latest information, at the same time forms the information culture of future specialists who will work in fundamentally new conditions of the information society.

The library fund is diversified; it has more than one million copies of domestic and foreign literature, including rare publications, specialized types of scientific and technical literature and documents (since 1984), abstracts of dissertations (since 1950), dissertations (since 1946), more than 500 names of magazines and more than 50 names of newspapers. The fund is staffed with materials on agriculture and forestry, economics, technology, and related sciences.

Library services for readers are carried out at 8 subscriptions, in 7 reading rooms for 527 places, of which 4 are branch, 1 – universal and 1 – specialized reading room for academic staff, post-graduate students and masters – Reference Room; MBA; library catalogues, including electronic one (more than 206,292 units of records); bibliographic card indexes including personalities (since 1954), a collection of reference and bibliographic publications. Such an extensive library system makes it possible to annually serve all structural divisions of more than 40,000 users per year, including 14,000 students. Book issuance is more than a million copies per year.

The reading room is provided with wireless Internet access. All library resources are available at the University website: https://nubip.edu.ua.

Among electronic resources, it should be noted that the digital library of the NULES of Ukraine, which was created in November 2019, is available from the Internet and now contains 790 full-text documents, including:

- 150 textbooks and manuals;
- 117 monographs;
• 420 abstracts of dissertations;
• 98 digitized rare and valuable publications from the library funds (1795-1932).

An important electronic resource is also an electronic library (from the local network of the University); there are more than 6409 full-text documents (textbooks, manuals, monographs, methodological recommendations).

From January 1, 2017, NULES of Ukraine has opened access to one of the largest science metric databases Web of Science.

Web of Science allows to organize a search by keywords, an individual author and organization (university), while connecting a powerful apparatus for analyzing the results found.

Since November 2017, access to the science metric and universal abstract database SCOPUS of Elsevier publishing house has been open at NULES of Ukraine. Access is provided from the University’s local network at https://www.scopus.com

SCOPUS database indexes about 22,000 titles of various publications (including 55 Ukrainian) from more than 5,000 publishers.

SCOPUS provides its users with the opportunity to get thematic search results from one platform with a convenient interface, track their rating in SCOPUS (citing one’s own publications, Hirsch index) and more.

**User service** for scientific, educational, and artistic literature is carried out at 8 subscriptions and 7 reading halls of the central library and branches of the library in educational buildings No. 1, 6, 10, 11, 12.

In 2019 the number of readers for one registration account amounted to 15517 persons, which issued 1005248 copies of documents.

**Mass and educational work.** In the framework of classes on information culture, a library quest was introduced, during which students got acquainted with the location of library departments and reading rooms. Each group of students was divided into two teams and received separate tasks. In the process of completing assignments and searching for clues, students visited each department of the library, gained skills in working with classical library catalogs, and learned about the location of subscriptions and reading halls. The goal of the quest was to make statements about libraries and reading. Winners received nice gifts. A total of 41 lessons were held.

In November 2019, the library organized the meeting of students with a modern Ukrainian writer Maks Kidruk within the framework of his all-Ukrainian tour presentation of the new novel “Doky Svitlo Ne Zgasne Nazavzhdy” (“Until the Lights Turn Off Forever”).

In 2019, for the first time, on World Embroidery Day, a photo zone was equipped in the library and a competition was announced among students and academic staff for the best photo in an embroidered shirt. Winners received incentive prizes.

By 2019, 117 thematic exhibitions were organized at which 2262 documents were presented, and 401 documents were issued from them.

Mass work of the library was aimed at promotion of Ukrainian literature, acquaintance with prominent figures of science and culture, formation of readers' national consciousness, love of the motherland and people, nurturing respect for parents, women-mothers, culture and history, developing high degree speech culture, mastering the Ukrainian language, instilling a respectful attitude to culture, customs, traditions of the Ukrainian people, law-abiding attitude to the Constitution, legislation of Ukraine, respect for state symbols.

Thematic and other cultural events are organized in the library branches and departments. Mass work is aimed at promoting the books, covering the main dates and events in the life of the country, promoting the folk traditions of the Ukrainian people, promoting native literature and language. Native language is not just a means of communication, not only a source of information, but the life of society and the most important means of patriotic education of youth, as it is considered one of the main tasks
of expanding students' acquaintance with the work and the library fund and providing them with the necessary information.

In general, in 2018, the total number of information events (reader conferences, debates, bibliographic reviews, thematic exhibitions) amounted to 184.

**Reference and bibliographic and information services** for users were conducted based on plans of research and educational work of the university and according to collective and individual applications received during the year.

For information and bibliographic support of basic research and applied developments in the field of topical issues of agricultural science and education, namely:
- environmental problems of Ukraine;
- economic development of agriculture of Ukraine;
- problems of feeding, cultivation, and treatment of agriculture animals;
- technologies and ecology of growing individual crops;
- methodologies of higher education

4 thematic bibliographic indexes and 6 thematic lists have been prepared.

For the anniversary of the University, a retrospective bibliographic index "Systematic index of dissertations available in the scientific library of the National University of Life and Environmental Sciences of Ukraine" (1939-2018) has been compiled in the amount of 5812 titles of documents.

According to the topics of master's theses, 8 thematic lists were prepared.

For all categories of users 2 bibliographic and information indexes have been compiled:
- "Periodicals subscribed by the scientific library for 2019");
- "Bulletin of new acquisitions of literature of the scientific library for 2018-2019");
- According to the program "Information culture" classes were held with first and senior students (98 hours);
- During the year, consultations were provided to bachelors, masters, graduate students, instructors:
  - consultations on the methodology of information retrieval in science metric and universal abstract databases SCOPUS and Web of Science (WoS);
  - consultations on the methodology of information retrieval in the EBSCO international database;
  - consultations on drawing up the list of the used literature, the list of references according to GOST 71-2006 and DSTU 8302: 2015 "Bibliographic reference" to bachelor's, master's, candidate's works.
- During the year, according to the tables of UDC and BBK, indexation of scientific works of scientific and pedagogical workers, articles, abstracts to conferences of bachelors and masters was carried out. Master's theses were indexed according to orders received from the deans' offices.
- In 2019, a total of 4389 titles of all printed products were indexed according to UDC tables. Of these, 1,297 UDC indexes were sent by e-mail; according to the tables of BBK 450 titles of documents and the author's mark on monographs, textbooks, manuals were defined.

**Acquisition and accounting of funds.** Replenishment of the funds of the scientific library of NULES of Ukraine with educational and methodical literature and periodicals is carried out based on orders from the departments of faculties and institutes of the university. During 2019, the scientific library received a total of 6781 copies of new documents, and the general fund on 01.01.2020 has 1031889 copies of documents.
In 2019, library staff took an active part in library seminars. Thus, in particular, the library staff participated in the following events:

- Training and methodological seminar "Effective use of science metric databases of the EBSCO HOST platform in research activities", Kyiv, March 12, 2019;
- International scientific-practical conference "Taras Shevchenko's phenomenon: linguistic, historical and socio-philosophical aspects", Kyiv, March 12, 2019;
- Educational and methodical seminar "Development of native scientific journals in order to promote them in international science metric databases", Kyiv, March 19, 2019;
- International Conference "Academic integrity: practical dimension", Kyiv, April 11-12, 2019;
- Scientific-practical conference "Modern trends in the development of the library in the structure of the information process and scientific activities of the Free Economic Zone", Chernihiv, April 23-24, 2019;
- Presentation of dictionaries of the Ukrainian language of the Shot renaissance era, Kyiv, April 24, 2019;
- Seminar-presentation "Formation of academic integrity in a modern university", Kyiv, May 15, 2019;
- International Conference on science metric and bibliometrics, Kyiv, June 4, 2019;
- International Conference "Scientific evolution of research in the library and information noosphere", Odessa, June 19-21, 2019;
- Workshop "Search and evaluation of international cooperation and grants with the help of Web of Science Group tools", Kyiv, September 12, 2019;
- XVIII International scientific-practical conference "Development of an information society: resources and technologies", Kyiv, September 19-20, 2019;
- Scientific-practical seminar "Educational mission of the modern library of an agricultural institution of higher education", Zalishchky, September 25-26, 2019;
- All-Ukrainian scientific-practical conference "Library and information environment as a driver of changes and educational innovations", Kharkiv, October 24-25, 2019.

Informatization of library and bibliographic processes. In 2019-2020, several organizational and technological measures were taken in the direction of informatization of library and bibliographic processes:

- filling of electronic catalog databases was continued;
- use of bar code-based technologies was continued;
- the process of automated book publishing on the subscription service of scientific and fiction literature has started;
- work was carried out to ensure access to full-text documents hosted on the servers of the university and the library;
- the formation and use of the database of users of the scientific library for automated book publishing was continued;
- collection of data on the use of electronic resources by readers of the scientific library of NULES of Ukraine, the university and world information resources were continued;
- users have access to the resources of the NULES network of Ukraine (website, admin-portal, e-mail, departmental servers), and the world, including electronic catalog of the library through the web interface, bibliographic indexes, resources for access to full-text scientific publications and bibliographic databases;
- information on the University portal on the library page was constantly updated (nubip.edu.ua/structure/library);
• information content of the scientific library page on the social network Facebook (www.facebook.com/nbnubib.ua) was regularly updated.
  • the filling of the electronic library of NULES of Ukraine with publications of scientific and educational works of instructors and employees of NULES of Ukraine was continued. Among them - textbooks and manuals, teaching materials for practical and laboratory classes, abstracts of dissertations, monographs;
  • a digital library of NULES of Ukraine was created on the open software Space, which will house publications of research and teaching staff of the university according to the concluded copyright agreements, abstracts of dissertations, digitized rare and valuable publications, articles and conference abstracts;
  • reference and information service of users was carried out in the mode of electronic consultation, with the help of the package application to WEB-IRBIS, service "Ask the librarian" (Virtual help);
  • consultations were provided to the staff of the scientific library and libraries of separate subdivisions of NULES of Ukraine on the issues of automation of library processes and use of ABIS "IRBIS-64";
  • library staff participated in training seminars and training on the use of ABIS and automation of library processes.

1.11. Educational, sports and social work

TSC of educational work and social development organizes and coordinates the educational work of the university together with the departments of military training, cultural sciences, physical education, humanitarian direction, student self-government bodies.

The work of the Council for the organization of educational activities at the university has been initiated to coordinate and conduct high-quality university activities and educational work in the basic educational institution and separate departments. The "Student Education Program "Citizen, Patriot, Specialist" and a comprehensive plan of educational work for the period 2020-2025 have been developed. On its basis the Concept of national education of student youth in NULES of Ukraine and the Concept of educational work of NULES of Ukraine have been developed and implemented.

The work of the Museum of the History of NULES of Ukraine to the 120th University has been restored. 3D-virtual tours of the museum and the territory of the educational buildings, the Emblem Hall of the University have been launched.

The university has 5 art studios, 10 creative teams, 5 of them having the honorary title of "folk amateur" (3 were received last year). Traditional events held annually remain unchanged, namely: University Day "Knowledge Day", competition for the best song group "Song battles", International Student day, "Beauty of NULES of Ukraine", International festival of artistic creativity "Holosiivska Vesna", "University day", etc.

But TSC of EW and SD introduces and conducts new ones, among them: the university project "School of leadership of NULES of Ukraine" was launched and the first graduation was made, the chess club "Chess king of NULES of Ukraine" was created, as well as the military sports competitions "Patriot of NULES of Ukraine", military sports competitions on fire training "Sniper of NULES of Ukraine", competition for the best intellectual group using the test to determine the IQ level, track and field relay "Holosiivske kiltse", competition for "University day" for the best sports group, sports contest among residents of dormitories in new sports, such as paintball, floor push-ups, squats, rolling pins, volleyball on the ground, accurate shots on goalposts from a distance and many others.
TSC of educational work and social development together with the department of pedagogy organizes scientific and methodological seminars for mentors of academic groups of the first year of study, which allow to carry out activities, apply pedagogical influences and techniques aimed at forming the student body and group.

According to the order of the Ministry of Family, Youth and Sports of Ukraine, the Ministry of Education and Science of Ukraine, the Ministry of Defense of Ukraine, the Ministry of Culture and Tourism of Ukraine dated 27.10.2009 № 3754/981/538/49 "On the Concept of national-patriotic education of youth" at the department of military training the military-patriotic education of students and pupils of educational institutions was carried out both during classes and outside the classroom during the morning examination.

The department of military training traditionally holds events aimed at forming personal responsibility for the defense of the motherland, education in the best military and labor traditions of the Ukrainian people, rituals of dedication to cadets, ceremonial presentation of junior lieutenant's shoulder straps, and events on the occasion of Defender of Ukraine Day, the Day of the Armed Forces of Ukraine, Victory Day. Much attention is paid to promoting the heroic history of the Ukrainian people and the Armed Forces, acquainting students with the history of the university, with the participation of its staff and students in heroic events, regular meetings with participants (ATO) JFO, soldiers of the Armed Forces of Ukraine (graduates of the university and the department of military training) and the participants of World War II, explaining to students the purpose of the military bloc (NATO).

With the assistance of the TSC, a sports competition "UNI-sportman" has been launched among employees and students of NULES of Ukraine, where participants compete in 15 sports. The national teams of the university on rope pulling (tug of war), powerlifting, and arm wrestling have been created and function effectively.

There is also a permanent commission to monitor compliance with the Rules of procedure in the dormitories of NULES of Ukraine.

Physical culture and sports work in NULES of Ukraine is carried out by the staff of the department of physical education, together with the Student organization of NULES of Ukraine, the trade union of NULES of Ukraine under the leadership of TSC of educational work and social development, by involving students, researchers and university staff in physical education, mass sports and sports of the highest achievements.

Every year there are sports contests among students of faculties (TSI) in 16 sports, residents of dormitories in 12 sports, "Zdorovya (Health)" among researchers, research and teaching staff and employees of structural units in 6 sports, athletics relay among students "Zolota osin (Golden Autumn)". There are also intra-faculty competitions in football, mini-football, park volleyball, table tennis, chess, and checkers.

The national teams of the university and individual athletes take part in competitions of various levels: district, city, national, international and have repeatedly won award winning places.

To maintain the physical culture and health of young people in 2012, an outdoor mini-football field with artificial turf was built. In 2017-2018, a large-scale renovation of the educational building № 9 was carried out, which houses the department of physical education of the university, reconstruction of the open volleyball court, stadium, etc. In 2020, an outdoor playground for mini-football and volleyball with artificial turf has been built near the second and tenth dormitories on the university campus. Reconstruction of the new building for 4 gyms for the department of physical education based on the former old hangar has begun.

Dormitories have no less important influence on the education of students, creating a basis for the development of the personalities of the future qualified specialists, the owners of their land, a comprehensively developed and harmonious personalities. Every year the quality of living conditions in the dormitories of NULES of Ukraine is improving.
The rector’s office has purchased and installed hot water boilers in each dormitory, purchased new furniture for the rooms, living rooms equipped with hard and soft equipment, created conditions for self-study: there are reading rooms with free Internet access, educational and cultural and mass work. Self-service laundries are available in almost all dormitories. There are sports rooms in the dormitories for sports. Reconstruction of the volleyball court in front of the dormitory № 6, children's playground near the dormitory № 12, and equipped sports grounds near the dormitories №1, 2, 6, 8, 10, 11 and a modern hall for martial arts (students who are part of the university guard), dormitory № 4 is underway. Equipping and arranging of the student Campus has been started.

A joint dormitory council has been created and elected. Student faculty organizations and research institutes and student dormitory councils have meeting rooms. It has become a tradition every year to hold a review-competition for the best dormitory to identify the best mechanisms for organizing living conditions, education and recreation of students.

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, 674 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 2019, the university graduated 244 reserve officers.

Now the department trains:
- First year of study – 290 students;
- Second year of study - 274 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 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.

Fruitful cooperation with leading universities of the world facilitated the reformation and adaptation of education system of NULES of Ukraine to the requirements of leading universities in the world. The two universities of the United States (State of Iowa – 1996, 2011, 2014 and State of Louisiana – 1998, 2009), University of Ghent (Belgium, 2002) and the University. Humboldt (Germany, 2002) have recognized education system of NULES of Ukraine as corresponding to their requirements.

During period from 2005-2019 memorandums were signed about the possibility of obtaining the double diploma between NULES of Ukraine and universities-partners:

• "International bio-business" in Tokyo agricultural University (Japan);
• Master of Business Administration in Agriculture (MBA) at the University of applied sciences Weihenstephan – Triesdorf (Germany);
• Master of Food and Agribusiness (MFA) at the University of applied Sciences Anhalt (Germany);
• Energy and automation of biological systems" at Warsaw University of life Sciences (Poland).
• «Ecology», «Social pedagogy» - Pomeranian university in Slupsk;
• «Economics and management» - Slovakia agrarian university, Nitra;

There are agreements between the mentioned universities and NULES of Ukraine according to exchange of scientific pedagogical and pedagogical staff and students.

Main International Projects (Programs)

ERASMUS+ - is the European Union Programme for 2014-2020 to support projects, partnerships, events and mobility in the areas of education, training, youth and sport (signed 16 agreements);

Project QANTUS - "Qualifications measures in the field of natural sciences in Ukrainian universities";

Project "System of differentiated forest management in forest ecosystems in the Ukrainian Carpathians, Czech Republic – Ukraine";

Innovative research project "Decreasing risks of catastrophic fires in the exclusion zone";

Regional Project of technical cooperation MAGATE "Radiological Support for the Rehabilitation of the Areas Affected by the Chernobyl Nuclear Power Plant Accident";

Project for the development of grain warehouses and agricultural cooperatives of Ukraine, SOCODEVI;

"Use of natural waterpots to extinguish forest fires with apply of new technologies";
COMET "Coordination and implementation of Pan-European instrument for Radioecology", project of the European Commission FP7;  
"Ecological law", "Food safety control in the EU", project "Erasmus +", Jean Monet direction;  
"Biofuel production from new biomass sources";  
Program of academic exchanges MELVANA.

Every year in NULES of Ukraine:  
- **about 200 students** train and do internship at overseas universities;  
- **about 500 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.

### 1.14. Student self-governing

There is a Student Organization at the 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 and the activities of the hobby clubs.  

Hobby clubs and centers of the Student organization:  
- Tourist club;  
- Scientific club;  
- Social center;  
- Fan club of the university sports teams;  
- University guard.  
- ART-HUB Holosiiv is a separate area.  

Student organization 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 Kyiv. 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
   187 Woodworking and Furniture Technologies

2.6. Faculty of Veterinary Medicine
   211 Veterinary Medicine

2.7. Faculty of Alimentary Technologies and Managing of Quality of Products of Agricultural Sector of Economy
   181 Food Technologies
   229 Public Health

2.8. Faculty of Mekhaniks-Technology
   208 Agroengineering
   211 Transport Technologies (on Motor Transport)

2.9. Faculty of Construction and Design
   133 Sectoral 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
   144 Heat power engineering
   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 Economics
072 Finance, Banking and Insurance
071 Accounting and Taxation
076 Entrepreneurship, Trade and Exchange Activities

2.14. Faculty of Agrarian Management
075 Marketing
073 Management

2.15. Faculty of Information Technology
051 Economy (Educational program «Economic Cybernetics»)
051 Economy (Educational program "Digital Economy")
121 Software Engineering
122 Computer Science
123 Computer Engineering
125 Cybersecret

2.16. Humanitarian Pedagogical Faculty
231 Social Work
035.04 Philology (Germanic languages and literature (Including translation), first – German language)
035.01 Philology (Germanic languages and literature (Including translation), first – English language)
291 International relations, social communications and regional studios
015 Professional Education
053 Psychology
061 Journalism
017 Physical Education and Sports

2.17. Education and Research Institute of Continuous Education and Tourism
242 Tourism
241 Hotel-restaurant business
281 Public Management and Administration
2.1. General Regulations

In the curricula for bachelors, the components of educational and professional programs (EPP) are structured according to the following constituent parts:

1. Cycle of general training.
2. Cycle of special (professional) training.

In the curriculum, the volumes of the EPP components are distributed as follows:

- **Compulsory components** - 60% of the total student workload (their list, scope and forms of certification are determined by the standard of higher education, in accordance with the requirements of the Ministry of Education and Science of Ukraine within a relevant specialty);

- **Compulsory components by the decision of the Academic Council of the University** - 15% of the total student workload (their list, forms of study (classroom or independent) and certification are determined by the Academic Council of the university). Such components are studied by the bachelor students of the I-II years of study;

- **Optional components** - not less than 25% of the total student workload. Such components are studied by undergraduate bachelor students of the III-IV years of study.
  - Optional components are divided into:
  - components of free choice in the specialty (educational program);
  - components of free choice according to students' preferences.

The list of free choice disciplines in the specialty is formed by the departments of faculties (ERI) and their volume in ECTS credits makes for the students with:

- 4-year term of study - 54 credits;
- 3-year term of study - 45 credits;
- 2-year term of study - 30 credits.

The list of disciplines of free choice in the specialty (educational program) with their annotations is posted (updated) on the website of the faculty or ERI until November 1 of the current year and on the educational information portal of NULES of Ukraine (https://elearn.nubip.edu.ua/) on page of the relevant faculty or ERI.

The organization of the choice of disciplines for the next course of study is provided by the deans of faculties and ERI directorates in the previous course of study until December 1 in paper form or on the educational information portal of NULES of Ukraine according to the instructions on the page of the faculty or ERI.

The list of disciplines of free choice according to the preferences of students is formed by the educational department at the request of faculties and research institutes. In the curriculum, their volume is 6 ECTS credits (two disciplines of 3 ECTS credits each).

The list of Optional disciplines to the liking of students ("Selective courses") with their annotations is posted (updated) on the website of NULES of Ukraine (https://nubip.edu.ua/) in the section "Educational work", subsection "Organization of the educational process", subsection "Student" and on the educational and information portal of NULES of Ukraine according to the instructions on the page of the relevant faculty or TSI until November 1 of the current year.

In 2020-2021 academic year 107 optional disciplines have been formed; from their list each student chooses any two disciplines to his/her liking.
The Compulsory components EPP by the decision of the Academic Council of the university" include those that are studied by students in all specialties of the bachelor's degree:

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, Crop production technologies, Animal husbandry technologies, Information technology (in branch), Starting your own business based on business design, Business protocol and communication ethics.

The following are annotations of these components.

Annotations of Compulsory components by decision of the Academic Council of 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.

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.

Crop production technologies. Academic discipline "Crop production technologies" involves gaining knowledge about the technically perfect and economically profitable growing of high yields of the best quality agricultural crops. It includes the study of the theoretical basis of modern technologies for the cultivation of crops, technical, energetic, medical plants; the development of technological maps and understanding of the requirements for conducting technological operations for the cultivation of the field crops. It supposes mastering the methods of the state of crops diagnostics in the field through the methods of forecasting and programming of the yields, risks assessment of field crops cultivating as a control system of the production, sale and use of standardized quality of crop production.

Animal husbandry technologies. The aim of the discipline is to form students’ strong knowledge, skills and abilities of scientifically based technologies of production of livestock products using innovative technologies. The task of the discipline is to provide future specialists with a set of knowledge on the organization of feeding, breeding and reproduction, the keeping of farm animals and the production of products from them.

After studying the discipline, the student has to know: a system of theoretical knowledge related to the production of eco-friendly livestock products, in accordance with legislative acts, standards, standard management decisions, goals of the enterprise. Students should be able to: manage the technological processes of production of livestock products in different economic systems in order to obtain maximum productivity.
**Information Technology (in branch).** A digital citizen is a modern requirement. Information and data: forms of the presentation and means of processing. Information processes. System maintenance of information processes, software tools for working with structured documents, network technologies, application of the Internet resources and services in the branch. Special software (support of business processes of the chosen branch). Fundamentals of web design, organization of computer security and information security, software tools for working with databases and data warehouses, prospects of the development of information technology. Modern digital communications in the global space. Monitoring and evaluation of digital competencies. Building a self-educating trajectory of a future specialist (non-formal learning). Professional certification in accordance with the professional development of the Microsoft Office Specialist.

**Setting up your own business based on business design.** The aim of the discipline is the formation of knowledge and practical skills to set up own business on the basis of business design. The task of the discipline is to study the theoretical foundations and normative and legal support for setting up own business. The content of the discipline is in the following topics: entrepreneurial activity and its types, administrative and legal forms of entrepreneurship, the mechanism of setting up own business, business planning of entrepreneurial activity, drawing up of investment projects, economic evaluation of technologies, financial and credit support of entrepreneurship and taxing, accounting and reporting in business structures, economic efficiency of business entities.

**Business protocol and communication ethics.** The protocol is called the form of a hierarchical order, demonstrating good manners of the partners from different countries. It is a set of conduct rules, norms and traditions at formal and informal meetings. Even in the ancient times, it was said that the protocol was a sign of friendship. The protocol defines methods, frames, behavior and etiquette.

Etiquette is the game rules called "life". These rules are equal for all, regardless of the age, gender, status. As they dictate not what to do, but how to do it. Communication plays an important role in our life, and its psychological nature is too complicated. In the process of communication, the desired organization and unity of actions of individuals are achieved, intellectual and emotional-sensory interaction is realized among them, a common sense of attitudes and opinions are formed, mutual understanding and coherence of action, cooperation and solidarity are achieved, so team work is impossible without that.


2.2. AGROBIOLOGY FACULTY

Dean – Oksana Tonha, Doctor of Agricultural Sciences, Associate professor
tel.: (044) 527-82-13, E-mail: oksana16095@gmail.com
Location: Building № 4, room 41а

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

201 Agronomy

Educational-professional Program «Agronomy»

Guarantor of the program – Candidate of Agricultural Sciences, Associate professor V.M. Zavgorodniy Tel.: (044) 527-82-13 E-mail: zavgorvlad@gmail.com

Graduating departments:

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

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

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

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

Genetics, breeding and seed them. prof. M.O.Zelenskooho
Tel.: (044) 527-86-26 E-mail: breedingdepartment@gmail.com
Head of department – Candidate of Agricultural Sciences, Associate professor O. S. Makarchuk

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

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

Educational-professional Program «Horticulture and Viticulture»

Guarantor of the program – Candidate of Agricultural Sciences, Associate professor B.M. Mazur   Tel.: (044) 527-85-59 E-mail: mazurborism@gmail.com

Graduating departments:

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

Gardening named after Professor V. L. Symyrenko  
Tel.: (044) 527-85-59   E-mail: hortdep@gmail.com  
Head of department – Candidate of Agricultural Sciences, Associate professor B.M. Mazur
Bachelor
field of knowledge "Agricultural science and food"
in specialty "AGRONOMY"
Educational-professional program «Agronomy»

Form of Training: Licensed number of persons:
– Full-time 220
– Part-time 90

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. Agroeconomic analysis of the agricultural system and technology of cultivation of field crops in an agricultural enterprise.
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. Influence of conservation and soil-protective technologies of cultivation of crops on the properties of soils..
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 (Educational-professional or Educational-scientific) 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»

Educational-professional program «Agronomy»

<table>
<thead>
<tr>
<th>Code</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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### 1. GENERAL TRAINING CYCLE

#### Compulsory components

| CC 1 | Botany                                                                 | 6                      | exam             |
| CC 2 | Agrophysics                                                           | 4                      | exam             |
| CC 3 | Chemistry                                                             | 10                     | exam             |
|      | (incl. inorganic and analytical organic, physical and colloidal)       | 6                      | exam             |
| CC 4 | Agroecology basics of radiobiology                                    | 4                      | exam             |
| CC 5 | Genetics                                                              | 4                      | exam             |
| CC 6 | Plant physiology with the fundamentals of biochemistry                 | 4                      | exam             |
| CC 7 | Agrometeorology                                                       | 4                      | exam             |
| CC 8 | Stockbreeding and beekeeping                                          | 4                      | exam             |
| Total|                                                                   | 40                     |                  |

#### Compulsory components EPP by decision of the Academic Council of the University

| CCU 1 | History of Ukrainian Statehood                                       | 4                      | exam             |
| CCU 2 | Philosophy                                                           | 4                      | exam             |
| CCU 3 | Physical training                                                    | 4                      | test             |
| CCU 4 | Ukrainian for professional purposes and ethnocultural                | 7                      | exam             |
| CCU 5 | Foreign language (English, German, French, Spanish)                   | 5                      | exam             |
| CCU 6 | Safety of work and life                                              | 4                      | exam             |
| CCU 7 | Legal culture of personality                                         | 4                      | exam             |
| CCU 8 | Information technology in the industry                               | 4                      | exam             |
| Total |                                                                   | 36                     |                  |

### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

#### Compulsory components EPP

| CC 9 | Soil Science with the bases of geology                               | 7                      | exam             |
| CC 10 | Agricultural Entomology                                            | 5                      | exam             |
| CC 11 | Phytopathology                                                       | 5                      | exam             |
| CC 12 | Farm equipment of agricultural production                           | 6                      | exam             |
| CC 13 | Basic research in agronomy                                          | 4                      | exam             |
| CC 14 | Agriculture                                                         | 9                      | exam             |
| CC 15 | Herbology                                                           | 4                      | exam             |
| CC 16 | Plant Growing                                                       | 11                     | exam             |
| CC 17 | Field and meadow fodder                                             | 5                      | exam             |
| CC 18 | Agrochemical chemistry                                              | 8                      | exam             |
| CC 19 | Fruit-growing                                                       | 8                      | exam             |
| CC 20 | Vegetable growing                                                   | 5                      | exam             |
| CC 21 | Breeding and seed growing of crops                                  | 8                      | exam             |
| CC 22 | Technology of storage and processing of plant products               | 7                      | exam             |
| CC 23 | Standardization and management of planting products quality          | 5                      | exam             |
| CC 24 | Economics and business                                              | 5                      | exam             |
| CC 25 | Technologies of Protected Cultivated                                | 5                      | exam             |
| Total |                                                                   | 104                    |                  |

The total amount of Compulsory components: 180

### Optional components EPP

#### Optional components by specialty (block 1 «Agronomy»)

| OB 1.1 | Agricultural microbiology and virology                              | 6                      | exam             |
| OB 1.2 | Land reclamation                                                   | 6                      | test             |
| OB 1.3 | Fundamentals of agribusiness and management                        | 4                      | test             |
| OB 1.4 | Biotechnology                                                       | 4                      | exam             |
| OB 1.5 | Programming and forecasting crop yields | 4 | test |
| OB 1.6 | Seed Studies | 5 | exam |
| OB 1.7 | Technological examination of crop production | 6 | exam |
| OB 1.8 | The management of the functional value of the crop products | 5 | exam |
| OB 1.9 | Mathematical and statistical methods of analysis in agronomy | 5 | exam |
| OB 1.10 | Seasonal phytocenoses | 4 | test |
| OB 1.11 | Breeding and Seed-growing heterosis hybrids | 5 | exam |
| **Total** | **54** |  |  |

**Optional components by specialty (block 2 «Agrochemistry and Soil Science»)**

| OB 2.1 | Agricultural microbiology and virology | 6 | exam |
| OB 2.2 | Fundamentals of land management and land cadastre | 4 | test |
| OB 2.3 | Land reclamation | 6 | test |
| OB 2.4 | Fundamentals of agribusiness and management | 4 | test |
| OB 2.5 | Biotechnology | 4 | exam |
| OB 2.6 | System of the fertilizers application with the basic of the differential fertilizers application | 7 | exam |
| OB 2.7 | The methodology of the agrochemical investigation with basic of the remote field monitoring | 6 | exam |
| OB 2.8 | The management of the quality of crop products | 5 | exam |
| OB 2.9 | Technology of rational land use | 4 | test |
| OB 2.10 | Soil cartography | 4 | exam |
| OB 2.11 | Soil conservation | 4 | exam |
| **Total** | **54** |  |  |

**Optional components by specialty (block 3 «Selection and Genetics of Agricultural Crops»)**

| OB 3.1 | Agricultural microbiology and virology | 6 | exam |
| OB 3.2 | Fundamentals of land management and land cadastre | 4 | test |
| OB 3.3 | Land reclamation | 6 | test |
| OB 3.4 | Fundamentals of agribusiness and management | 4 | test |
| OB 3.5 | Biotechnology | 4 | exam |
| OB 3.6 | Special genetic field crops | 10 | exam |
| OB 3.7 | Special breeding and variety studding crops | 10 | exam |
| OB 3.8 | Seed-growing of the field crops | 10 | exam |
| **Total** | **54** |  |  |

**Optional components by Student’s Choice**

| OS 1 | Selective discipline | 3 | test |
| OS 2 | Selective discipline | 3 | test |
| **Total** | **6** |  |  |

**The total amount of Optional components**

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<tr>
<td>3. OTHER TYPES OF TRAINING</td>
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<tr>
<td>CC 26</td>
<td>Military training course</td>
</tr>
<tr>
<td>CC 27</td>
<td>Academic Practice</td>
</tr>
<tr>
<td>CC 28</td>
<td>Production Practice</td>
</tr>
<tr>
<td>CC 29</td>
<td>Bachelor Thesis writing (Graduate thesis or Project)</td>
</tr>
<tr>
<td><strong>THE TOTAL AMOUNT OF EPP (without military training)</strong></td>
<td><strong>240</strong></td>
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</table>
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components EPP

**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 ahrozhahody 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, alkines, 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.** Actuality of its study consists in that in the process of studies students meet with basic problems which exists in agosphere. 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.
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 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.

Agrometeorology. The course covers a wide range of topics regarding the effects of weather and climate on the agricultural productivity. The main focus of the training discipline is on the modern methods used for agrometeorological assessment of the climate, microclimate and weather. Specifically, such issues as agro-climatic zoning, modern technics for agrometeorological measurements/observations and forecasting methodologies are considered in details due to their key importance for agricultural management. Besides, the attention is also addressed to the extreme weather events, which might have negative influence on the agriculture plants, and the methods for their mitigation. Finally, the importance of the meteorological and climatological information to enhance or expand agricultural crops is discussed.

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.
Compulsory components by decision of the Academic Council of the University

Annotations of components "History of Ukrainian statehood", "Philosophy", "Physical education", "Ukrainian language for professional purposes and ethnocultural studies", "Foreign language for professional purposes", "Safety of work and life", "Legal culture of personality", "Information technologies in the industry "see Section 2.1. Catalog

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components EPP

Soil Science with the bases of geology. This course is an introductory designed course for the Bachelor student, which provides the basic concepts of all aspects of geology and soil science. It encompasses: Earth’s origin; internal and external Earth’s dynamics; minerals and rocks – formation, composition, diagnostics and properties changes; agronomic ores properties and application; anthropogenic influence on geologic environment. The course presents the soil composition and genesis; physical, chemical, and biological properties; soil water; classification and mapping; soil geography, soil conservation; management practices; and soil fertility and productivity (soil testing, use of fertilizers and liming), soil quality assessment. This course gives practical experience as an aid in developing understanding of the minerals, rocks and soils as natural bodies, the use of which has an influence on environmental, human society and life in general. Students will gain an appreciation of soil as a valuable natural resource and as an integral and essential part of terrestrial ecosystems, and will be able to utilize their knowledge of soil science to solve relevant issues confronted in their academic and professional careers.

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. 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.

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 mashynovkorystannya 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.

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 and practical course dedicated to the study of methods and algorithms statistical analysis of experimental data, variation, variance, correlation, regression, Pearson analysis, probit analysis.
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 & care measures for crops; types of soil erosion and deflation & 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.

Plant growing. The course forms future specialists with knowledge and skills of technological measures for maximizing the biologica 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 loosing of crop during harvesting, transportation.

Field and meadow fodder. The course deals with technological issues of growing basic fodder crops and production of high quality fodder from them, which is the basis for the development of animal husbandry and providing the population with sufficient quality food products of animal origin. The technological measures of increase of productivity of fodder plants and methods of estimation of their nutrition are studied, the methods of creation of high-yielding forage areas on field lands are considered, the skills on the choice of ways of improvement and effective use of natural forage lands and creation of high-yielding cultural pastures on them are acquired. The discipline acquaints with modern technologies of harvesting and storage of fodder and production of seeds of fodder crops.

Agrochemical chemistry (agrochemistry). 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 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.

**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 departures studying.

**Technology of storage and processing of plant products.** The discipline 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 cereals, legumes for the different purpose, fruits, vegetables, potatoes and industrial crops (sugar beet, flax, hops, essential oil crops). The program of discipline provides study keeping capacity (the ability to be stored) of harvest yield and its ability to provide certain processed products obtained under favourable growing conditions and unfavourable conditions and how affecting factors of protection, 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. Theoretical foundations of long-term storage, the foundations of primary processing of plant products must be learn. Students must learn the requirements of the standards and methods of quality evaluation crop production.

**Standardization and management of planting products quality.** The course includes the study of the following questions: tasks, principles and methods of standardization, national and international systems of standardization, standardization of indicators and methods of determining the quality of products, information on domestic and foreign experience of the management of product quality. With using discipline we study current national and international requirements to the crop products with aim to produce quality and competitive products. The definition of quality and purpose of the consignment of wheat, barley, oats, buckwheat, peas, apples, potatoes, tomatoes, cucumbers, carrots, beets and other crops with aim to obtain maximum profit observed. To develop effective measures of management of product quality for produce quality, safe, organic and competitive products. The principles and procedure of certification of products for the domestic market and export will master. Peculiarities of creation and implementation on
the manufacturing system of standard ISO 9000 with following accreditation of system of quality management are considered. The current laws of standardization, certification and safety of crop production are taken into account in teaching of the discipline.

**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.

**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.

**Optional components EPP**

*Optional components by specialty (block 1“Agronomy”)*

**Agricultural microbiology and virology.** 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 deseases and pests of plant, perspective means of plant protection for graving harvest agricultural crops. 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.

**Land reclamation.** The course is designed to present the peculiarities of the profitable use of current reclamation technologies (irrigation, drainage, sustainable water management, chemical, and agroforestry melioration) in modern agricultural production. The training course is based on a combination of the latest scientific achievements and real-world experience of their use. The course is organized into a series of theoretical and practical classes, discussions, and meetings with leading industry experts including field trips to visit actual sites with successful experience in the implementation of reclamation technologies.
Fundamentals of agribusiness and management. 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.

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.

Programming and forecasting crop yields. The goal is to produce high, stable, economically justified and forecasted yields of agricultural crops. The solution of this problem is possible in case of determination of the complex influence of natural and organizational technological factors on the growth and plants development and the formation of their productivity, determining the level of needs of agricultural crops by these factors in specific soil and climatic conditions and justifying the need for resources to regulate them. The basic principle is the programming of plant life factors in accordance with the requirements of the laws of agronomy. Programming and forecasting yields are focusing at the organization of agrophytocenosis as a system for maximizing its performance and based on efficient use of solar energy, resources of heat, humid, carbon dioxide, soil minerals and fertilization, creation of the necessary biological, agro-environmental and energy conditions for obtaining programmed yields with high economic efficiency.

Modern methods and ways of forecasting programming of yields allow to take into account an adequate production function of the dependence of yield on a complex of factors evaluate the impact of limiting factors of crop formation and provide for management decisions and adjustment of zonal elements of cultivation technologies during the growing season based on the use of innovative methodological approaches to agronomic, economic and environmental justification of possible yield levels (potential, real-production, climate-secured) agricultural crops.

Seed Studies. Discipline is the essence of nutrition, the development of motherhood, motherhood, achievement, achievement and development, beginning of life and understanding, I’m always aware that I’m more physical-mechanical, biochemical and physiological authorities; and that of gardening material; the sovereign and the international legislative and regulatory frameworks of virobnost, realizatsii and vikoristannya nasinnya sylskogospodarskikh cultures; methods for the identification of the most recent nastiness; internal and sovereign control over the pre-laws of the rule of religion on all etapahs; of international business associations in the galaxy of society and national knowledge, including the supply of trade and high-quality certification in the form of OECD schemes. As a result of vivchenny discipline, the student is guilty of nobility: history and development of knowledge in the context of applied science and universal discipline; morphological, anatomical and biologic particularities of social and gardening materials; physical and mechanical, biological and physical power and social and functional material; methods of analysis of the latest insights on the basis of the material for the most recent hours of the DSTU. You need to know how to work with agronomic theoretical knowledge and practical skills in secured state thanks to the most recent material.
Technological examination of crop production. The discipline focuses on the issues of determining the quality and safety of raw materials and finished products, the characteristics of the elements technologies of cultivation, postharvest handling, storage and processing which provides the highest quality and safety of food products. The discipline establishes the conformity of plant raw materials and finished products to the requirements of normative documents, identifying errors in the technological process, which may be cause disconformity of products, detecting of violations in the accounting of raw materials and materials due to the introduction of new technological equipment on the enterprise, the use of new types of raw materials, detecting deviations of the parameters of the technological process that affecting on the quality and safety of products, the size of technological costs and losses, the output of the final product, detecting possible off-the-books and counterfeit products and so on. Studying the discipline will allow students to conduct on a high professional level a technological examination of the production and processing of crop production, the assessment of the quality and safety of food products and food raw materials, to establish compliance with its requirements of the relevant standards, including international, in order to improve the quality and competitiveness of domestic products.

The management of the functional value of the crop products. 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 basic 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, level of oil fertility, sorts and hybrids features for improving of the functional value of crop products according to standards.

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.

Seasonal phytocenoses. 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 displaing. Discipline involves the assimilation of methods industrial production of hybrid seed field crops by fertile and sterile base.
Optional components by specialty
(block 2 “Agrochemistry and Soil Science”)

Agricultural microbiology and virology. 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 deseases and pests of plant, perspective means of plant protection for gravning harvest agricultural crops. 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.

Fundamentals of land management and land cadastre. 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.

Land reclamation. The course is designed to present the peculiarities of the profitable use of current reclamation technologies (irrigation, drainage, sustainable water management, chemical, and agroforestry melioration) in modern agricultural production. The training course is based on a combination of the latest scientific achievements and real-world experience of their use. The course is organized into a series of theoretical and practical classes, discussions, and meetings with leading industry experts including field trips to visit actual sites with successful experience in the implementation of reclamation technologies.

Fundamentals of agribusiness and management. 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.

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.
System of the fertilizers application with the basic of the differential fertilizers application. The goal of the studding of the theoretical materials and laboratory classes are mastering for bachelor 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 based on differential fertilization.

The methodology of the agrochemical investigation with basic of the remote field monitoring. The goal of the studding of the theoretical materials and laboratory classes are mastering for bachelor in theoretical knowledge into the remote field monitoring, planning, elaboration of the 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, lisymetric 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.

The management of the quality of crop products. The goal of the studding of the theoretical materials and laboratory classes are mastering for bachelor 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 agroresources 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.

Technology of rational land use. The course helps students in gaining knowledge about sustainable environmentally sound land use, introducing modern technologies use various land and soil in order to protect them from degradation processes and achieve expanded reproduction of soil fertility. As a result of the course students possess knowledge of the current state of land resources of Ukraine, the principles of rational use of noncommercial portion harvest for reproduction of soil fertility, modern soil system tillage, especially the rational use eroded, sour, salty, salted, drained, irrigated, technological and contaminated and learn how to design and implement measures to prevent degradation processes. After studying the theoretical and practical knowledge, students will learn to develop and apply modern technologies of cultivation of crops on the basis of soil and resource conservation in order to ensure environmentally sustainable land use and taking into account the features of soils and lands.

Soil Cartography. Soil Cartography is a unique discipline that helps to understand the creating and use of different maps. The General Cartography section provides an overview of the different types of maps, map projections, scales, toponymics, map symbols and nomenclature. Students will be get acquainted with GPS positioning system, will learn to: determine the object coordinates on a base of degree and rectangular coordinate system, key objects to a topographic map or terrain in azimuth directions. The Applied Mapping section offers a study of cartographic basics, thematic maps, contour plans of land use, cartograms, aerial photographs and satellite images. Soil Cartography will teach future professionals to organize and carry out preparations, field and cameral work. Particular attention is given to the creation of: soil maps, agrochemical cartograms and thematic maps based on the results of field research or according to data base. Students will be learned to: form the team of the future expedition; collect the necessary
instruments; determine the volume of work; carry out reconnaissance; perform some field soil-geographical and cartographic studies; select soil samples; determine the list of analytical works; create a field and original map. Students of the course will be able to use soil-cartographic materials for: accounting of agricultural lands, land management, soil tillage application, fertilization systems, crop rotations planning, identification of adapted plant varieties and technologies for specific soil conditions, development of ameliorative and soil protection management, soil quality assessment, economical land evaluation, etc.

**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.

**Optional components by specialty**
*(block 3 “Selection and Genetics of Agricultural Crops”)*

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**Special genetic field crops.** Total problems 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 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 his reproduction. A value of biotechnology and genic 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.
Bachelor field of knowledge “Agricultural science and food” in specialty "HORTICULTURE AND VITICULTURE"
Educational-professional program «Horticulture and Viticulture»

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.

10. Modeling of highly efficient production of planting material and fruit grapes agrotechnical and economic analysis of growing conditions in farms of different ownership.

Academic rights of Graduates: graduates can apply for Master’s Degree Specialties and Educational (Educational-professional or Educational-scientific) 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»

**Educational-professional program «Horticulture and Viticulture»**

<table>
<thead>
<tr>
<th>Code</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits</th>
<th>The final control</th>
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<tr>
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#### 1. GENERAL TRAINING CYCLE

**Compulsory components EPP**

<table>
<thead>
<tr>
<th>Code</th>
<th>Component</th>
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</tr>
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<tbody>
<tr>
<td>CC 1</td>
<td>Botany</td>
<td>7</td>
<td>exam</td>
</tr>
<tr>
<td>CC 2</td>
<td>Agrophysics</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>CC 3</td>
<td>Chemistry (incl. inorganic and analytical organic, physical and colloidal)</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 4</td>
<td>Genetics</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>CC 5</td>
<td>Plant physiology</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>CC 6</td>
<td>Agrometeorology</td>
<td>5</td>
<td>exam</td>
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<td></td>
<td><strong>Total</strong></td>
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**Compulsory components EPP by decision of the Academic Council of the University**

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<th>Code</th>
<th>Component</th>
<th>Amount of credits</th>
<th>The final control</th>
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<tbody>
<tr>
<td>CCU 1</td>
<td>History of Ukrainian Statehood</td>
<td>4</td>
<td>exam</td>
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<tr>
<td>CCU 2</td>
<td>Ukrainian for professional purposes and ethnocultural</td>
<td>7</td>
<td>exam</td>
</tr>
<tr>
<td>CCU 3</td>
<td>Philosophy</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CCU 4</td>
<td>Physical training</td>
<td>4</td>
<td>test</td>
</tr>
<tr>
<td>CCU 5</td>
<td>Foreign language (English, German, French, Spanish)</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CCU 6</td>
<td>Safety of work and life</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CCU 7</td>
<td>Starting your own business based on business design</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CCU 8</td>
<td>Information technology in the industry</td>
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<td><strong>Total</strong></td>
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#### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components EPP**

<table>
<thead>
<tr>
<th>Code</th>
<th>Component</th>
<th>Amount of credits</th>
<th>The final control</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC 7</td>
<td>Soil Science with the bases of geology</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>CC 8</td>
<td>Entomology</td>
<td>4</td>
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<tr>
<td>CC 9</td>
<td>Phytopathology the basics of virology</td>
<td>5</td>
<td>exam</td>
</tr>
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<td>CC 10</td>
<td>Farm equipment and instruments</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 11</td>
<td>Basic research</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 12</td>
<td>Agriculture and herbology</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>CC 13</td>
<td>Agrochemical service for vegetable growing, horticulture and viticulture</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 14</td>
<td>Plant Growing</td>
<td>6</td>
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<tr>
<td>CC 15</td>
<td>Viticulture</td>
<td>7</td>
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</tr>
<tr>
<td>CC 16</td>
<td>Agrochemical chemistry</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>CC 17</td>
<td>Fruit-growing</td>
<td>11</td>
<td>exam</td>
</tr>
<tr>
<td>CC 18</td>
<td>Vegetable growing</td>
<td>11</td>
<td>exam</td>
</tr>
<tr>
<td>CC 19</td>
<td>Selection of vegetable, fruit and berry crops</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 20</td>
<td>Technology of storage and processing of of fruits and vegetables</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 21</td>
<td>Standardization and commodity science of fruit and vegetable and viticulture</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 22</td>
<td>Economics, entrepreneurship and management in fruit and vegetable production</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 23</td>
<td>Mushroom growing</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 24</td>
<td>Technologies of Protected Cultivated</td>
<td>6</td>
<td>exam</td>
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<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>104</strong></td>
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</tbody>
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The total amount of Compulsory components **180**

**Optional components EPP**

**Optional components by specialty**

<table>
<thead>
<tr>
<th>Code</th>
<th>Component</th>
<th>Amount of credits</th>
<th>The final control</th>
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<td>OB 1.1</td>
<td>Agricultural microbiology</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.2</td>
<td>Seeds of vegetable crops</td>
<td>4</td>
<td>exam</td>
</tr>
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</table>
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components EPP

**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. Agrophysics 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 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 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.** 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.

**Agrometeorology.** The course focuses on the studing of the impact of weather, microclimate and climate on the agricultural productivity, in particular on gardening and grape production. Extreme weather events and phenomena, which might have negative effect on fruit trees and vineyards, are considered in details, as well as possible mitigation activities and measures. Specifically, the issue of the modern climate change and variability is discussed in context of agricultural management in the gardening and viticulture (short and long term planning).

**Compulsory components by decision of the Academic Council of the University**

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components EPP

Soil Science with the bases of geology. This course is an introductory designed course for the Bachelor student, which provides the basic concepts of all aspects of geology and soil science. It encompasses: Earth’s origin; internal and external Earth’s dynamics; minerals and rocks – formation, composition, diagnostics and properties changes; agronomic ores properties and application; anthropogenic influence on geologic environment. The course presents the soil composition and genesis; physical, chemical, and biological properties; soil water; classification and mapping; soil geography, soil conservation; management practices; and soil fertility and productivity (soil testing, use of fertilizers and liming), soil quality assessment. This course gives practical experience as an aid in developing understanding of the minerals, rocks and soils as natural bodies, the use of which has an influence on environmental, human society and life in general. Students will gain an appreciation of soil as a valuable natural resource and as an integral and essential part of terrestrial ecosystems, and will be able to utilize their knowledge of soil science to solve relevant issues confronted in their academic and professional careers.

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.

Phytopathology the basics of virology. Plant pathology studies phytopathology, reasons of their appearance features in development, symptoms pathology 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.

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 mashynovkyorystannya 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.

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.

Agriculture and herbology. . 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. 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.

**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 viniculture 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 viniculture, 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 viniculture by resources and service of the chemicals.

**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 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.

**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).

**Agrochemical chemistry (agrochemistry).** The goal of the studying 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.

**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 fruits and vegetables.** The discipline studies the scientific principles of storage of fruits and vegetables, individuality them as objects of storage and processing, the influence of factors of cultivation and post-harvest handling on their quality and keeping capacity, forecasting the suitability for storage and different ways of processing. The technological characteristics of different types of depositories, the peculiarities of accommodation fruits and vegetables in them for short or long-term storage are studied. Effective regimes and ways of storage of different kind of fruit and vegetable products, possibility of providing and maintaining optimal regime parameters of their storage, features of storage of fruits, vegetables and berries in conditions of regulated and modified atmosphere are considered. A separate module provides for the study of modern technologies of processing fruits and vegetables. Microbiological, physical, chemical methods of preservation, peculiarities of making fermented, dried and frozen products from fruits and vegetables, natural vegetable
preserves, fruit and berry compotes, juices, mashed potatoes and jam are considered. Basics of potato tubers processing. Quality assessment of canned vegetables, accounting, quality control and storage features of finished products.

**Standardization and commodity science of fruit and vegetable and viticulture.** The course includes the study of the following questions: the goals and objectives of standardization, essence of standardization as a science, methodical basics of standardization, the questions of quality of horticultural products, standardization of the indexes quality of products and the methods of their control, international standards. In the discipline presented general information about domestic and foreign experience of management of the quality horticultural products, certification and metrology supply. Students will master current requirements to the fruits and vegetables with aim to obtain competitive products. To develop effective measures of management of product quality for produce quality, safe, organic and competitive products. The principles and procedure of certification of products for the domestic market and export will master. Peculiarities of creation and implementation on the manufacturing system of standard ISO 9000 with following accreditation of system of quality management are considered. The current laws of standardization, certification and safety of crop production are taken into account in teaching of the discipline. Discipline studies commodity characterization of various types of fruit and vegetable products and products of its processing, methods of preparation for realization of consignment of fruits and vegetables, rules of registration of accompanying documents and methods of evaluation of commodity quality.

**Economics, entrepreneurship and management in fruit and vegetable production.** 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.

**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.

**Technologies of 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.
Optional components EPP

Optional components by specialty

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 harvesting agricultural crops.

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.

Land reclamation. This course is designed as an application tool for the use of advanced reclamation technologies in horticulture vegetable growing and viticulture. Special focus is on hydro reclamation (irrigation, fertigation, drainage) - an effective factor in improving the quality and quantity of fruit and vegetable products. The course is organized into a series of lectures, technical classes with calculations of the irrigation schedule of fruit and vegetable crops in accordance with the specific soil and climatic conditions and series of some field trips, discussions, meetings with experts.

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, jiggings, 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.

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.

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.

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.

**Potato**. Subject program involves the study of technology growing stable yields of potatoes in different soil-climatic zones with high lezkozdatnistyu, 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.

**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.

**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.

**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, Associate professor Julia Kolomiets

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

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

202 Plant Protection and Plant Quarantine

Educational-professional Program «Plant protection and plant quarantine»

Graduating departments:

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

Department of Phytopathology named after Academician V.F. Peresypkin
Tel.: (044) 527-82-11, E-mail: dgentosh@ukr.net
Head of the department – PhD in Agricultural Sciences, Associate professor, D.T. Gentosh

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

162 Biotechnology and Bioengineering

Educational-professional Program «Biotechnology and Bioengineering»

Graduating department:

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

101 Ecology

Educational-professional Program «Ecology»

Graduating department:

Department of Agricultural Sphere Ecology and Ecological Control
Tel.: (044) 527-81-95, E-mail: vchaika28@gmail.com
Head of the department – Doctor of Agricultural Sciences, Professor V. M. Chaika
Bachelor
field of knowledge "Agricultural science and food"
In specialty "PLANT PROTECTION AND PLANT QUARANTINE"
Educational-professional program "Plant Protection and Plant Quarantine"

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 and plant quarantine

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", "Velykosnytinske 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.
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 Specializations 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”**

Educational-professional Program "Plant protection and plant quarantine"

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<tr>
<td></td>
<td><strong>1. GENERAL TRAINING CYCLE</strong></td>
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<td></td>
<td><strong>Compulsory components</strong></td>
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<tr>
<td></td>
<td>CC 1 Higher mathematics (professional orientation)</td>
<td>3</td>
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<td></td>
<td>CC 2 Fundamentals of computer science</td>
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<td></td>
<td>CC 3 Biophysics</td>
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<td></td>
<td>CC 4 Chemistry (Inorganic and analytical, organic, physical and colloidal chemistry)</td>
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<td><strong>Compulsory components by the decision of the academic council of the university</strong></td>
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<td></td>
<td>CC 5 History of Ukrainian Statehood</td>
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<td></td>
<td>CC 6 Ethnocultural</td>
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<td>CC 7 Philosophy</td>
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<td>CC 8 Ukrainian for professional purposes</td>
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<td></td>
<td>CC 9 Foreign language (English, German, French, Spanish)</td>
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<td>CC 10 Physical training</td>
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<td>CC 11 Labour and life safety</td>
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<td>CC 12 Legal culture of personality</td>
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<td><strong>2. SPECIAL (PROFESSIONAL) TRAINING CYCLE</strong></td>
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<td><strong>Compulsory components</strong></td>
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<td></td>
<td>CC 13 Botany</td>
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<td>CC 14 Genetics</td>
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<td>CC 15 Farming</td>
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<td>CC 16 Agricultural chemistry</td>
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<td>CC 17 Crop production with basics of fodder production</td>
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<td>CC 18 Fundamentals of scientific research in plant protection</td>
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<td>CC 19 Mechanization of crop production</td>
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<td>CC 20 Technology of storage and processing of crop production products</td>
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<td></td>
<td>CC 21 General entomology</td>
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<td>CC 22 General plant pathology</td>
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<td>CC 23 General mycology</td>
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<td>CC 24 Quarantine of plants</td>
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<td>CC 25 Agricultural entomology</td>
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<td>CC 26 Agricultural plant pathology</td>
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<td>CC 27 Plant disease prognosis</td>
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<td>CC 28 Weed control</td>
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<td>CC 29 Pest monitoring</td>
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<td>CC 30 Plant immunity</td>
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<td>CC 31 Chemical protection with the bases of toxicology</td>
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<td>CC 32 Economics and business management</td>
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<td><strong>Optional components</strong></td>
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<td><strong>Optional Block</strong></td>
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<td>OB 2.1 Fundamentals of biotechnology in plant protection</td>
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<td>OB 2.2 Biological protecting of plants from wreckers</td>
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<td>OB 2.3 Agricultural zoology</td>
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<td>OB 2.4 Mites and Nematodes</td>
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<td>OB 2.5 Rodentology</td>
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<td>OB 2.6 General microbiology and virology</td>
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<td>OB 2.7 Plants Physiology with the bases of chemistry</td>
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<td>OB 2.8 Soil science with the bases of geology</td>
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<td>OB 2.9 Fruit and Vegetable growing</td>
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CURRICULA AND PROGRAMS OF BACHELOR DEGREE

| OB 2.10 | Protection of flowering and ornamental plants from pests and diseases | 6 | test |
| OB 2.11 | Protection of medicinal plants from pests and diseases | 6 | test |
| OB 2.12 | Protecting edible mushrooms from pests and diseases | 6 | test |
| **Optional Block by students’ choice** |
| OB 2.13 | Optional components 1 | 3 | exam |
| OB 2.14 | Optional components 2 | 3 | exam |
| **The volume of optional components** | | 60 |

3. OTHER TYPES OF TRAINING

| CC 3.1 | Military training course | 29 |
| CC 3.2 | Academic Practice | 12 |
| CC 3.3 | Production Practice | 5 |
| CC 3.4 | Bachelor Thesis writing (Graduate thesis or Project) | 2 |
| CC 3.5 | State Attestation | 2 |
| CC 3.6 | Total for Specialty (without Military training course) | 17 |
| **THE TOTAL AMOUNT OF EPP** | | 240 |

Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components


**Chemistry (Inorganic and analytical chemistry, organic chemistry, physical and colloidal chemistry)** is the study of the synthesis and behavior of inorganic and organometallic compounds. 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; 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 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.
Compulsory components by decision of the Academic Council of the University


2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

**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.


**Genetics with the basics of breeding.** 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.

**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.

**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.

**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.

**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 of crop 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.

**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, multififormity 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 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.

**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.

**Agricultural Plant Pathology** studies the crop diseases and works out the system of protection measures from one or group of diseases sting crops, biological peculiarities and technologies of small fruit crops growing.

**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).

**Weed control.** 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.
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 bioecosystem.

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.

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.

Optional components

Optional Block

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.

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.

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.

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


General Microbiology and Virology. The course provides knowledge and current understanding of the morphology, ultrastructure, systematics, genetics, physiology and ecology of microorganisms and viruses, metabolism and the role of microorganisms in the transformation of organic and inorganic substances in the processes of soil formation and soil fertility. The latest data on the relationship of microorganisms and viruses with higher plants, the prospects of creating microbiological plant protection products, bacterial fertilizers, biological products to increase crop yields. The role of microorganisms in the purification of contaminated soils by toxic compounds and pesticides is considered. The chemical composition, morphological structure and nature of genomes of different viruses,
mechanisms of their interaction with cells are presented. The modern systematics of viruses are given. Attention is paid to aspects of emerging and re-emergent infections that are dangerous to plants.

**Plant physiology with the basics of biochemistry.** It involves studying the functions of the plant organism and the laws of its life.

**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.

**Fruit and 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. 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 harve

**Protection of flowering and ornamental plants from pests and diseases.** It envisages studying the principles of formation of phytodesign compositions with ornamental and flowering plants in natural, anthropo-natural, landscape and cultural phytocenoses of open and closed soil, substantiation of their role in natural regulating mechanisms and purification of the environment from adverse factors.

Introduces students to the species composition of pests and pathogens of flowering and ornamental plants; visual signs of settlement, symptoms of disease; bioecological features of pathogens; the influence of environmental conditions on the processes of disease development of flowering and ornamental plants; modern methods and methods of protection of flowering and ornamental plants from pests and diseases.

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

**Protecting edible mushrooms from pests and diseases.** 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
field of knowledge "Chemical and Bioengineering"
in specialty "BIOTECHNOLOGY AND BIOENGINEERING"
Educational-professional Program "Biotechnology 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 of biotechnology and bioengineering

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 cryomophylactic lines rapeseed (Brassica napus L) in culture in vitro.
2. Biotechnological production bases and the use of entomophagous on maize crops.
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 Specializations specified in Table 1.2 Section 1.3 this Catalog

Employment of Graduates

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»
#### Educational-professional Program "Biotechnology and Bioengineering"

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<tbody>
<tr>
<td></td>
<td>1. GENERAL TRAINING CYCLE</td>
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<tr>
<td></td>
<td>Compulsory components</td>
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<tr>
<td>CC 1</td>
<td>Political Science</td>
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<td>Higher Mathematics</td>
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<tr>
<td>CC 3</td>
<td>Physics</td>
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<td>CC 4</td>
<td>General and Inorganic Chemistry</td>
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<td>Organic Chemistry</td>
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<td>CC 6</td>
<td>Analytical Chemistry</td>
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<td>CC 7</td>
<td>Physical and Colloid Chemistry</td>
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<tr>
<td>CC 8</td>
<td>Engineering and Computer Graphics</td>
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<tr>
<td>CC 9</td>
<td>Computational Mathematics and Programming</td>
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<td>CC 10</td>
<td>Economics and Organization biotech industries</td>
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<td>Compulsory components by the decision of the academic council of the university</td>
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<tr>
<td>CC 11</td>
<td>History of Ukrainian Statehood</td>
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<td>CC 12</td>
<td>Ethnocultural</td>
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<td>CC 13</td>
<td>Philosophy</td>
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<tr>
<td>CC 14</td>
<td>Ukrainian for professional purposes</td>
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<tr>
<td>CC 15</td>
<td>Foreign language (English, German, French, Spanish)</td>
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<td>CC 16</td>
<td>Physical training</td>
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<tr>
<td>CC 17</td>
<td>Labour and life safety</td>
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<tr>
<td>CC 18</td>
<td>Legal culture of personality</td>
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<td>2. SPECIAL (PROFESSIONAL) TRAINING CYCLE</td>
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<td>CC 19</td>
<td>Biochemistry</td>
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<td>CC 20</td>
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<td>CC 21</td>
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<tr>
<td>CC 22</td>
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<td>CC 23</td>
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<td>CC 24</td>
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<td>CC 25</td>
<td>Biotechnological processes and equipment manufacturing</td>
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<td>CC 26</td>
<td>Automation biotech industries</td>
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<tr>
<td>CC 27</td>
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<tr>
<td>CC 28</td>
<td>Fundamentals of designing</td>
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<tr>
<td>CC 29</td>
<td>Biosafety (the use of biotechnology)</td>
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<td>CC 30</td>
<td>Plant physiology</td>
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<tr>
<td>CC 31</td>
<td>Industrial biotechnology</td>
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<tr>
<td>CC 32</td>
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<tr>
<td>CC 33</td>
<td>Molecular biotechnology</td>
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<tr>
<td>CC 34</td>
<td>Ecological biotechnology</td>
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<td></td>
<td>Optional components</td>
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<tr>
<td>OB 1.1</td>
<td>Radiobiology and radioecology</td>
<td>3</td>
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<tr>
<td>OB 1.2</td>
<td>Basics of biodiversity</td>
<td>3</td>
<td>exam</td>
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<tr>
<td>OB 1.3</td>
<td>Proteomics and genomics viruses</td>
<td>3</td>
<td>exam</td>
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<tr>
<td>OB 1.4</td>
<td>Applied ecology</td>
<td>3</td>
<td>exam</td>
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<tr>
<td>OB 1.5</td>
<td>Introduction to the profession</td>
<td>3</td>
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<tr>
<td>OB 1.6</td>
<td>Immunogenetics</td>
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<tr>
<td>OB 1.7</td>
<td>Biotechnology of microbial synthesis of drugs</td>
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<tr>
<td>OB 1.8</td>
<td>Biotechnology of production of microbial products for agriculture</td>
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<td>exam</td>
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### CURRICULA AND PROGRAMS OF BACHELOR DEGREE

| OB 1.9 | Objects of biotechnological production | 3 | exam |
| OB 1.10 | Instrumental methods of analysis | 3 | exam |
| OB 1.11 | Computer technology and programming fundamentals | 3 | exam |
| OB 1.12 | Grounds of biological system functioning | 3 | exam |
| OB 1.13 | Climatology | 3 | test |
| OB 1.14 | Bioenergy systems in agrarian production | 4 | test |
| OB 1.15 | Technologies of bioproduction | 4 | test |
| OB 1.16 | Fundamentals of plant biotechnology | 4 | test |
| OB 1.17 | Bioconversion of waste | 4 | exam |

### Optional Block «Agricultural biotechnology»

| OB 2.1 | Radiobiology and radioecology | 3 | exam |
| OB 2.2 | Basics of biodiversity | 3 | exam |
| OB 2.3 | Proteomics and genomics viruses | 3 | exam |
| OB 2.4 | Applied ecology | 3 | exam |
| OB 2.5 | Introduction to the profession | 3 | exam |
| OB 2.6 | Immunogenetics | 2 | exam |
| OB 2.7 | Biotechnology of microbial synthesis of drugs | 3 | exam |
| OB 2.8 | Biotechnology of production of microbial products for agriculture | 3 | exam |
| OB 2.9 | Objects of biotechnological production | 3 | exam |
| OB 2.10 | Instrumental methods of analysis | 3 | exam |
| OB 2.11 | Computer technology and programming fundamentals | 3 | exam |
| OB 2.12 | Grounds of biological system functioning | 3 | exam |
| OB 2.13 | Climatology | 3 | exam |
| OB 2.14 | Environmental security in agriculture | 4 | exam |
| OB 2.15 | Agricultural biotechnology | 4 | exam |
| OB 2.16 | Biomethods of plant protection | 4 | exam |
| OB 2.17 | Biotechnological processes of agritechnologies | 4 | exam |

### Optional Block by students choice

| OB 2.18 | Optional components 1 | 3 | exam |
| OB 2.19 | Optional components 2 | 3 | exam |

**The volume of optional components**

| 60 |

### 3. OTHER TYPES OF TRAINING

| CC 3.1 | Military training course | 29 |
| CC 3.2 | Academic Practice | 10 |
| CC 3.3 | Production Practice | 4 |
| CC 3.4 | Bachelor Thesis writing (Graduate thesis or Project) | 2 |
| CC 3.5 | State Attestation | 1 |
| CC 3.6 | Total for Specialty (without Military training course) | 17 |

**THE TOTAL AMOUNT OF EPP**

| 240 |

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### Annotations of Components in the curriculum

#### GENERAL TRAINING CYCLE

**Compulsory components**

- **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 titration, strengthening skills in the chemical laboratory.

Analytical chemistry. Disciplines 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.

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.

Computational Mathematics 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.

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.

Compulsory components by the decision of the academic council of the university


SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

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.

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.

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.

**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 ekobiocenes.

**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.

**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.

**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.

**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”.

**Optional components**

**Optional Block «Environmental biotechnology»**

**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.

**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.

**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.

**Biotechnology 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, amyloytic, 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.

**Biotechnology 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 phosphatemobilizing 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.

**Objects of biotechnological production.** Attention during the course of teaching is focused on the biochemical transformation of substrates into products for which the purpose of the biotechnology is sought. The course consists of two content modules. The first module is devoted to acquainting with the diversity of producers of target substances and peculiarities of their use, as well as to the value of each group of these organisms. The tasks of the second content module are the study of the lawfulness of the occurrence of elementary chemical and biological processes used in biotechnological research, as well as familiarization with the methods of rational provision and the use of assimilation and distillation processes for the receipt of target substances.

**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.

**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.

**Grounds of biological system functioning** is a training course, which aims to familiarize students of the specialty "Biotechnology and bioengineering" with various groups of organisms used in biotechnological industries, as well as with the features of organization and functioning of different organized biological systems – from molecular to biogeocenotic. The course consists of two content modules. The first module is devoted to the study of the functioning peculiarities of various systematic groups of lower organisms, such as mushrooms, algae and lichens, as well as acquaintance with the methods of their use in biotechnology. The objectives of the second content module are to study the higher plant biosystems – spores of vascular and non-vascular, gymnosperms and angiosperms and methods of their biotechnological use.

**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.

**Bioenergy systems in agrarian production.** The course " 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 controversy 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 (physic-chemical and biological recycling processes) and biotechnological methods for processing agricultural waste (biomass composition, wastewater treatment and solid waste, energy production, etc.)

**Optional Block «Agricultural biotechnology»**

**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.

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**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.

**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
field of knowledge “Natural Sciences”
in specialty “ECOLOGY”
Educational-professional Program "«Ecology"

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 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, “Bionorma” LLC, etc

Proposed Topics for Bachelor theses

Environmental rationing of the impact of crop production technologies on the state of agroecosystems.
Environmental assessment of the biodiversity of entomofauna of agricultural landscapes of Ukraine.
Ecotoxicological evaluation of nanoagrochemicals for the reaction of biological tests.

Academic rights of Graduates: graduates can apply for Master’s Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.

Employment of Graduates

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.
<table>
<thead>
<tr>
<th>Code</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<td></td>
<td><strong>Compulsory components</strong></td>
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</tr>
<tr>
<td>CC 1</td>
<td>Mathematical and physics</td>
<td>8</td>
<td>exam</td>
</tr>
<tr>
<td>CC 2</td>
<td>General and Inorganic Chemistry</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>CC 3</td>
<td>Organic and bioorganic, physical and colloidal Chemistry</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>CC 4</td>
<td>Analytical Chemistry</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>CC 5</td>
<td>Wildness protection</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 6</td>
<td>Biology (General, Botany)</td>
<td>8</td>
<td>exam</td>
</tr>
<tr>
<td>CC 7</td>
<td>General Ecology</td>
<td>6</td>
<td>exam</td>
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<tr>
<td>CC 8</td>
<td>Environmental monitoring</td>
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<td>exam</td>
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<tr>
<td>CC 9</td>
<td>Environmental monitoring II (Geoinformation monitoring)</td>
<td>2</td>
<td>exam</td>
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<tr>
<td>CC 10</td>
<td>Ecological safety</td>
<td>4</td>
<td>exam</td>
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<tr>
<td></td>
<td><strong>Compulsory components by the decision of the academic council of the university</strong></td>
<td></td>
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<tr>
<td>CC 11</td>
<td>History of Ukrainian Statehood</td>
<td>3</td>
<td>exam</td>
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<tr>
<td>CC 12</td>
<td>Ethnocultural</td>
<td>3</td>
<td>exam</td>
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<tr>
<td>CC 13</td>
<td>Philosophy</td>
<td>3</td>
<td>exam</td>
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<td>CC 14</td>
<td>Ukrainian for professional purposes</td>
<td>3</td>
<td>exam</td>
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<tr>
<td>CC 15</td>
<td>Foreign language (English, German, French, Spanish)</td>
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<td>exam</td>
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<tr>
<td>CC 16</td>
<td>Physical training</td>
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<td>test</td>
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<tr>
<td>CC 17</td>
<td>Labour and life safety</td>
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<td>exam</td>
</tr>
<tr>
<td>CC 18</td>
<td>Environmental legislation and environmental law</td>
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<td></td>
<td><strong>2. SPECIAL (PROFESSIONAL) TRAINING CYCLE</strong></td>
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<td><strong>Compulsory components</strong></td>
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<tr>
<td>CC 19</td>
<td>Informatics and systemology</td>
<td>3</td>
<td>exam</td>
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<tr>
<td>CC 20</td>
<td>Geology with geomorphology basics</td>
<td>3</td>
<td>exam</td>
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<tr>
<td>CC 21</td>
<td>Hydrology</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 22</td>
<td>Introduction to speciality</td>
<td>7</td>
<td>exam</td>
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<tr>
<td>CC 23</td>
<td>Landscape Ecology</td>
<td>7</td>
<td>exam</td>
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<tr>
<td>CC 24</td>
<td>Technoecology</td>
<td>7</td>
<td>exam</td>
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<tr>
<td>CC 25</td>
<td>Human Ecology</td>
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<td>exam</td>
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<tr>
<td>CC 26</td>
<td>Regulatory Actions Anthropogenic Load upon Environment</td>
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<td>exam</td>
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<tr>
<td>CC 27</td>
<td>Ecology of Urban Systems</td>
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<td>exam</td>
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<tr>
<td>CC 28</td>
<td>Modeling and Environment State Forecasting</td>
<td>5</td>
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<tr>
<td>CC 29</td>
<td>Environmental Impact Assessment</td>
<td>3</td>
<td>exam</td>
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<tr>
<td>CC 30</td>
<td>Chemistry with the basics of biogeochemistry</td>
<td>5</td>
<td>test</td>
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<tr>
<td>CC 31</td>
<td>International environmental policy</td>
<td>4</td>
<td>test</td>
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<tr>
<td>CC 32</td>
<td>Organization and management of environmental activities</td>
<td>3</td>
<td>exam</td>
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<tr>
<td>CC 33</td>
<td>Scientific Activities Fundamentals</td>
<td>4</td>
<td>test</td>
</tr>
<tr>
<td>CC 34</td>
<td>Environmental Toxicology</td>
<td>4</td>
<td>test</td>
</tr>
<tr>
<td>CC 35</td>
<td>Agrochemistry</td>
<td>3</td>
<td>exam</td>
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</tbody>
</table>

The volume of compulsory components: **163**

**Optional components**

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<thead>
<tr>
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<td>OB 1.1 Economics of Nature Management</td>
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<td>OB 1.2 Fundamentals of environmental education and culture</td>
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<tr>
<td>OB 1.3 Meteorology and climatology</td>
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<tr>
<td>OB 1.4 Ecology of biological systems (microbiology, microbial ecology, virology, plant ecology, animal ecology)</td>
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<tr>
<td>OB 1.5 Environmental protection</td>
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<td>OB 1.6 Agroecology</td>
<td>4</td>
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<tr>
<td>OB 1.7 Fundamentals of GIS technologies</td>
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<tr>
<td>OB 1.8 Agricultural product quality management</td>
<td>4</td>
</tr>
</tbody>
</table>
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

Mathematical and physics. 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.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.
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 and Bioorganic, Physical and Colloidal Chemistry. During the study of organic chemistry, the nomenclature, finding in nature, the role in the living organism, structure, laboratory and industrial methods of obtaining, chemical properties of the basic classes of organic compounds: alkanes, alkenes, alkadienes, alkenes, cycloalkanes, aromatic compounds, terpenes, and also halogen derivatives are considered. Alcohols, phenols, aldehydes and ketones, carboxylic acids and their esters, anhydrides and halogens, amines and amides, carbohydrates, amino acids and proteins, nucleic acids. During the study of physical and colloidal chemistry, issues of thermodynamics, thermochemistry, solution theory, chemical kinetics and catalysis are considered, the main provisions related to the highly dispersed state of matter, surface phenomena and adsorption.

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.

Wilderness 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.

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 agroenoses.

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.

Environmental 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 agroenoses, skills and abilities of environmental-monitoring reclamation of irrigated and drained lands, to determine the extent of disease assessment.

Environmental Monitoring II (Geoinformation Monitoring) forms the knowledge of modern methods of monitoring tasks by using geoinformation systems and remote sensing tools; about the functionality of modern geoinformation systems for the tasks of monitoring environmental changes; ability and practical skills of environmental monitoring using modern information technologies.

Ecological Safety forms knowledge on fundamental and applied aspects of environmental safety, the ability and skills to use methods and techniques of environmental impact assessment, identification of risks of emergencies, processing, analysis, systematization and synthesis of information on environmental safety.
Compulsory components by the decision of the academic council of the university


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

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

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.

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.

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

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.

Technoeconomy. 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.
**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.

**Regulatory Actions Antropogenic Load upon Environmental.** 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 of rules of influence of factors of physical, chemical and biological nature, charts of rationale of regulations and the possibility of their use in practice.

**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 Environment State Forecasting.** 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.

**Environmental Impact Assessment** Provides knowledge about the normative and legislative basis of ecological-expert activity, general requirements for carrying out ecological examination, peculiarities of conducting geocological expertise as a new scientific and practical type of activity for estimating the mechanism of co-adaptation of natural and economic subsystems, procedures and methods of geocological expertise; students acquire the skills: to conduct an ecological examination of technologies, raw materials and products.

**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.

**International environmental policy** Studying the system of international ecological prology, ecological concepts, principles, approaches, priorities and directions of activity, documented and officially declared (approved), and which determines the relationship between society, the state and the environment, forms the knowledge and skills of future managers in the development of environmental policy, systems of production, management of enterprises, corporations taking into account international experience, through which demonstrates the tendency of management to environmental priorities.

**Organization and management in environmental activities** The subject of studying the discipline is the system of economic, economic, legal, financial relations in the field of provision of environmental protection activities at enterprises of Ukraine, substantiation of the mechanism of planning, control and efficient management of modern environmental projects. The purpose of the discipline is the formation of future specialists
in contemporary system thinking and a set of special skills and abilities of the use of a universal tool for environmental project management. The main tasks of studying the discipline are to provide a scientific and methodological basis for students to master the specialty 101 "Ecology" of the main instruments of management of environmental projects of the organization: familiarization with the stages and procedures of the formation of environmental projects, organizational, personnel, resource, financial and information and legal provision of environmental projects, definition economic, financial and social expediency of their implementation at macro and macro levels

**Scientific Activities Fundamentals.** 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

**Ecotoxicology.** 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

**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.

**Optional components**

**Optional Block «Ecological Agricultural sphere»**

**Economics of Nature Managment.** 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

**Fundamentals of environmental education and culture** Form knowledge on the main directions of human resource development, stages of environmental development and the consequences of this development, human-induced ecological disasters and ways of their solution, optimal and perspective methods of ecological education and culture in the current conditions of state development, main dimensions of ecological culture, main approaches development of ecological culture and consciousness of the general population, legislative and legal maintenance of rational nature use. Be able to: use the acquired knowledge in practice, distinguish between environmental problems of anthropogenic and natural origin, develop a concept for the development of environmental education at an enterprise or in an educational institution, in the region.

**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.
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. 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 agroecosystems, 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.

Fundamentals of GIS technologies provides the possibility of using in the production of software and hardware for automated accounting, storage, display, analysis, simulation of spatially coordinated information and the creation of databases. The task of studying the discipline is the formation of a specialist in theoretical knowledge and practical skills of work with relational databases, the ability to organize the collection and extraction of necessary data, the use of GIS for land management, including for the introduction and use of data of the state land cadastre (in particular, for land-registration data).

Agricultural Products Quality Management. 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 phytocoenosis and zoocoenosis within agroecosystems. 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.

Psychology and pedagogy. Forms students knowledge of research methods of psychology and pedagogy, patterns of the course of individual psychic phenomena and their interrelations, typology and style of individual management activities; skills and abilities to find the right ways to get out of conflict situations, identify and select the right leadership style of the team.

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.

**Ecological certification of territories.** 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.

**Environmental protection of agroecosystems (organic farming).** 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.

**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.

**Optional Block «Ecological problems of rural agglomerations»**

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**Psychology and pedagogy** Forms students knowledge of research methods of psychology and pedagogy, patterns of the course of individual psychic phenomena and their interrelations, typology and style of individual management activities; skills and abilities to find the right ways to get out of conflict situations, identify and select the right leadership style of the team.

**Nuclear safety.** The course program provides students with knowledge about the main factors of radiation hazard during production activities and the accidents at the enterprises which use the ionizing radiation sources. The scenarios of radiation hazard occurrence are considered as well as the basic rules of the government agencies behavior that make decisions on elimination of dangerous radiation situations.
NRB and CAP. The course program provides students with knowledge on the establishment of regulatory requirements by the State for the working with ionizing radiation sources and the organization of production at the radiation accidents. The norms of radiation safety of Ukraine promote for the assimilation of information about radiation safety organization against various sources of radiation exposure and protection against the radionuclide intake into the human body. Standards that limit additional (except natural irradiation) doses of external and internal radiation are provided as well as modern ideas about classification of radiation accidents and the behavior of the population at radiation danger.

SG production in radioactively contaminated territories. The course program provides students with knowledge and practical skills on the requirements of agricultural production on radionuclide contaminated territories such as regulatory requirements, classification of territories by the level of radioactive contamination. Particular attention is paid to the study of the possibilities of various branches of the agrarian production, taking into account the levels of radioactive contamination, soil conditions, and properties of different types of plants and animals, and also to carry out the anti-radiation measures in order to obtain quality plant products from the point of radiation hazard view. The students acquire of the practical skills in the problems of radiation situation estimating and predicting of the quality of agricultural products produced in the radionuclide contaminated territories.

Dosimetry and radiation control. The course program provides students with knowledge about the evaluation of radiation situation, the environmental impact of the nuclear fuel cycle enterprises, the allowable levels of radioactive substances emissions. Modern equipment and instruments allow doing radiometric and spectrometric measurements of radionuclide activity in environmental objects, food and drinking water, and also to calculate and predict the doses of external and internal human irradiation.
2.4. FACULTY LIVESTOCK SCIENCE AND WATER BIORESOURCES

Dean – Vadim Kondratiuk, Associated Professor, Candidate of Agricultural Science
Tel.: (044) 527-85-56 E-mail: vadkondratyk@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
Educational-professional Program “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
Educational-professional Program “Technology of production and processing of livestock products”

Graduating departments:
Department of Breeding and Biotechnology of animals
Tel.: (044) 527-82-30 E-mail: rubansy@gmail.com
Head of Department – Sergey Ruban. Professor, Doctor of Agricultural Sciences, Corresponding Member of the National Academy of Agrarian Sciences

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) 527-82-66 E-mail: horse_chair@twin.nauu.kiev.ua
Head of Department – Nicholay Povoznikov, 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: natpp@meta.ua
Head of Department - Nataliia Prokopenko, Professor, Doctor of Agricultural Science.
Bachelor
field of knowledge "Agricultural science and food"
in specialty "WATER BIORESOURCES AND AQUACULTURE"
Educational-professional Program “Water Bioresources and Aquiculture”

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 "Ukryryba", DG "Great Lubin", PJSC "Hmelnytskrybhosp", PE "Aquarium Technologies", PJSC "Sumyrybhosp", PJSC "Hersonrybhosp", JSC "Vilshanka", ARC "Kherson Fishermen", PJSC "Poltavarybhosp", Fishing Farm "Nykva", IRG NAAS of Ukraine, JSC "Chernihivrybosp", 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 Educational (Educational-professional or Educational-scientific) programs 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»

**Educational-professional program «Water Bioresources and Aquaculture»**

<table>
<thead>
<tr>
<th>Code</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits</th>
<th>ECTS</th>
<th>The final control</th>
</tr>
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<tbody>
<tr>
<td></td>
<td><strong>1. GENERAL TRAINING CYCLE</strong> Compulsory components EPP</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>CC 1 Ontogeny of fish</td>
<td>3</td>
<td></td>
<td>exam</td>
</tr>
<tr>
<td></td>
<td>CC 2 Zoology</td>
<td>7</td>
<td></td>
<td>test, exam</td>
</tr>
<tr>
<td></td>
<td>CC 3 Hydrochemistry</td>
<td>6</td>
<td></td>
<td>exam</td>
</tr>
<tr>
<td></td>
<td>CC 4 Mathematical Methods in Biology</td>
<td>4</td>
<td></td>
<td>exam</td>
</tr>
<tr>
<td></td>
<td>CC 5 Hydroecology</td>
<td>7</td>
<td></td>
<td>exam</td>
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<td></td>
<td><strong>Total</strong></td>
<td><strong>27</strong></td>
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<td></td>
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<td></td>
<td><strong>Compulsory components EPP by decision of the Academic council of the University</strong></td>
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<td></td>
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<tr>
<td></td>
<td>CCU 1.1 Ukrainian language for professionals</td>
<td>4</td>
<td></td>
<td>exam</td>
</tr>
<tr>
<td></td>
<td>CCU 1.2 The history of Ukrainian statehood</td>
<td>3</td>
<td></td>
<td>exam</td>
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<tr>
<td></td>
<td>CCU 1.3 Ethnoculturology</td>
<td>3</td>
<td></td>
<td>exam</td>
</tr>
<tr>
<td></td>
<td>CCU 1.4 Foreign language</td>
<td>12</td>
<td></td>
<td>test, exam</td>
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<tr>
<td></td>
<td>CCU 1.5 Physical education</td>
<td>4</td>
<td></td>
<td>test</td>
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<tr>
<td></td>
<td>CCU 1.6 Philosophy</td>
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<td></td>
<td>exam</td>
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<tr>
<td></td>
<td>CCU 1.7 Life and work safety</td>
<td>4</td>
<td></td>
<td>exam</td>
</tr>
<tr>
<td></td>
<td>CCU 1.8 Personality’s legal awareness</td>
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<td></td>
<td>test</td>
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<td><strong>Total</strong></td>
<td><strong>36</strong></td>
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</tr>
</tbody>
</table>

|      | **2. SPECIAL (PROFESSIONAL) TRAINING CYCLE** Compulsory components                                              |                   |      |                   |
|      | CC 1 Introduction to core professional course                                                                  | 3                 |      | exam              |
|      | CC 2 Hydrobiology                                                                                               | 9                 |      | test, exam        |
|      | CC 3 Ichthyology                                                                                                | 7                 |      | test, exam        |
|      | CC 4 Fish genetics                                                                                              | 3                 |      | exam              |
|      | CC 5 Aquatic toxicology                                                                                        | 4                 |      | exam              |
|      | CC 6 Fishing                                                                                                    | 7                 |      | test, exam        |
|      | CC 7 Ichthyopathology                                                                                           | 7                 |      | test, exam        |
|      | CC 8 Cultivation and breeding of fish                                                                            | 8                 |      | test, exam        |
|      | CC 9 Hydroengineering and technical equipment in fish farming                                                  | 8                 |      | test, exam        |
|      | CC 10 Feeding of fish                                                                                            | 6                 |      | exam              |
|      | CC 11 Biological basis of fish farming                                                                           | 5                 |      | exam              |
|      | CC 12 Aquaculture of natural reservoirs                                                                         | 10                |      | test, exam        |
|      | CC 13 Aquaculture of artificial reservoirs                                                                      | 10                |      | test, exam        |
|      | CC 14 Economics of fishery enterprises                                                                          | 6                 |      | exam              |
|      | **Total**                                                                                                        | **93**            |      |                   |
|      | **The total amount of Compulsory components**                                                                    | **156**           |      |                   |

**Optional components**

<table>
<thead>
<tr>
<th>Ob 1.1</th>
<th>Optional subjects by specialty (block 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ob 1.1</td>
<td>Latin</td>
</tr>
<tr>
<td>Ob 1.2</td>
<td>Biophysics aquatic</td>
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<tr>
<td>Ob 1.3</td>
<td>Aquatic microbiology</td>
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<tr>
<td>Ob 1.4</td>
<td>Fish anatomy</td>
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<tr>
<td>Ob 1.5</td>
<td>Physiology and Biochemistry of fish</td>
</tr>
<tr>
<td>Ob 1.6</td>
<td>Bioresources of hydrosphere and their protection</td>
</tr>
<tr>
<td>Ob 1.7</td>
<td>Fish processing technology</td>
</tr>
<tr>
<td>Ob 1.8</td>
<td>Research methodology in fish farming</td>
</tr>
<tr>
<td>Ob 1.9</td>
<td>Aquarium study</td>
</tr>
<tr>
<td>Ob 1.10</td>
<td>Leadership and administering</td>
</tr>
<tr>
<td>Ob 1.11</td>
<td>Principals of livestock farming</td>
</tr>
<tr>
<td>Ob 1.12</td>
<td>Fishery laws</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
</tbody>
</table>
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

**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.

**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 agroecosystems. 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.

**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.
CURRICULA AND PROGRAMS OF BACHELOR DEGREE

**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.

**Compulsory components by decision of the Academic council of the University**


2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

**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.

**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.

**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.

**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.

**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.

**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 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 technical equipment in fish farming. 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 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.

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.

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.

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).

Optional components

**Optional components by specialty (block 1)**

**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.

**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.

**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.

**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.

**Bioresources of hydrosphere and their protection.** 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.

**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.

**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.

**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.

**Leadership and administering.** The aim of the discipline "Leadership and administering" is to provide students with knowledge about the essentiality of leadership origins theory, its types, styles of leader behavior, means of person's leadership qualities realization, secrets of getting success, examples of success in business, agroindustrial complex, scientific life, art, sport, IT-sphere. Discipline includes a subject-specific component which allows students: to get knowledge of the leadership qualities self-improvement, means of the influence on the person's behavior and consciousness, skills of group managing, usage of constructive manipulation and how to disable destructive manipulative ways of influence, how to build up well-balanced interpersonal relationship in the group of people.

**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.

**Optional components by specialty (block 2)**

**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.

**Hydrobotanics.** The discipline allows students to get acquainted with patterns of plants and vegetation as an essential bioenergy component of biosphere. By the end of their botanics classes the students will learn methods of independent work with a microscope, individual production of medicines as well as cellular, tissue, member and body level analysis, which has a considerable cognitive and practical importance. The aim of the botanics course is to teach students to work independently, not only in the laboratory but also in nature.

**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.
Fundamentals of Ecology. The objective of teaching this discipline is to deepen the students’ knowledge about the environment, generate in future specialists ecological thinking and perspective.

Physiology 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.

Fundamentals of fishery protection and fishery laws. 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.

Standardization of aquaculture products. The discipline studies international and national standardization of aquaculture products and production processes; feeds, monitoring and quality control of agricultural products; liability borne by companies and officials for violations of existing standards.

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.

Industrial 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.

Political science. The discipline, which helps students build a system of logically completed basic knowledge about policies and adequate skills as the basis for development of political consciousness and political culture; the discipline acquaints students with the essence and genesis of political science as a discipline, its main issues and the current state of their solution.

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.

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.
Bachelor Field of knowledge "Agricultural science and food" in specialty "TECHNOLOGY OF PRODUCTION AND PROCESSING OF LIVESTOCK PRODUCTS"
Educational-professional Program «Technology of production and processing of livestock products»

Form of Training: Licensed number of persons:
– Full-time 125
– Part-time 60
Duration of Training 4 years
Tests 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. Muzychchenko 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 (Educational-professional or Educational-scientific) 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**

**Educational-professional Program «Technology of production and processing of livestock products»**

<table>
<thead>
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<th>Code n/a</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
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<th>The final control</th>
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<td>Chemistry</td>
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<td>Morphology of agricultural animals</td>
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<td>CC 4</td>
<td>Biochemistry in animal husbandry</td>
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<td>CC 5</td>
<td>Mechanization of production processes in animal husbandry</td>
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<td>CCU 1.5</td>
<td>Ethnoculturology</td>
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<td>exam</td>
</tr>
<tr>
<td>CCU 1.6</td>
<td>Philosophy</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CCU 1.7</td>
<td>Life and work safety</td>
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<td>Physiology of agricultural animals</td>
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<td>exam</td>
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<td>Ecology in animal husbandry</td>
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<td>exam</td>
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<td>CC 6</td>
<td>Animal hygiene</td>
<td>8</td>
<td>test, exam</td>
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<tr>
<td>CC 7</td>
<td>Animal breeding</td>
<td>8</td>
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</tr>
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<td>CC 8</td>
<td>Technology of rabbit breeding and animal farming</td>
<td>4</td>
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<td>CC 9</td>
<td>Technology of poultry production</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 10</td>
<td>Technology of beekeeping</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 11</td>
<td>Technology of goats production</td>
<td>5</td>
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<tr>
<td>CC 12</td>
<td>Technology of milk and beef production</td>
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<td>CC 13</td>
<td>Technology of pig production</td>
<td>8</td>
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<td>CC 14</td>
<td>Technology of sheep production</td>
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<tr>
<td>CC 15</td>
<td>Horse husbandry</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 16</td>
<td>Technology of processing livestock products</td>
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*Optional subjects by specialty (block 1)*

| OB 1.1 | Mathematical Methods in Biology                                                                 | 3 | exam |
| OB 1.2 | Biophysics in animal husbandry                                                                   | 3 | exam |
| OB 1.3 | Microbiology in animal husbandry                                                                  | 4 | exam |
| OB 1.4 | Forage production                                                                                | 3 | exam |
| OB 1.5 | Research methodology                                                                             | 3 | exam |
| OB 1.6 | Fishing                                                                                         | 4 | exam |
| OB 1.7 | Biotechnology in animal husbandry                                                                | 8 | test, exam |
| OB 1.8 | Principles of veterinary medicine                                                                | 3 | exam |
| OB 1.9 | Meat stockbreeding                                                                               | 4 | exam |
| OB 1.10| Legal regulation in livestock                                                                     | 3 | exam |
### CURRICULA AND PROGRAMS OF BACHELOR DEGREE

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<thead>
<tr>
<th>Component</th>
<th>Credits</th>
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<td>OB 1.11  Economics of animal</td>
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<td>exam</td>
</tr>
<tr>
<td>OB 1.12  Technology of slaughter products</td>
<td>4</td>
<td>test</td>
</tr>
<tr>
<td>OB 1.13  Leadership and administering</td>
<td>4</td>
<td>test</td>
</tr>
<tr>
<td>OB 1.14  EU Directives and Standards in Animal Husbandry</td>
<td>4</td>
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#### Optional subjects by specialty (block 2)

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<td>OB 2.2  Radiobiology</td>
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</tr>
<tr>
<td>OB 2.3  Biometric data processing</td>
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<td>exam</td>
</tr>
<tr>
<td>OB 2.4  Botanics</td>
<td>3</td>
<td>exam</td>
</tr>
<tr>
<td>OB 2.5  Research methodology</td>
<td>3</td>
<td>exam</td>
</tr>
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<td>OB 2.6  Fishing</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>OB 2.7  Biotechnology</td>
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<td>test, exam</td>
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<td>OB 2.8  Principles of veterinary medicine</td>
<td>3</td>
<td>exam</td>
</tr>
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<td>OB 2.9  Meat stockbreeding</td>
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<td>OB 2.10  Legal regulation in livestock</td>
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<td>exam</td>
</tr>
<tr>
<td>OB 2.11  Economics of animal</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>OB 2.12  Technology of livestock by-products</td>
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<tr>
<td>OB 2.13  Political science</td>
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<td>test</td>
</tr>
<tr>
<td>OB 2.14  Standardization of animal products</td>
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<tr>
<td><strong>Total</strong></td>
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#### 3. OTHER TYPES OF TRAINING

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<tr>
<td>CC 2  Academic Practice</td>
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<td>CC 3  Production Practice</td>
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<td>CC 4  State Attestation</td>
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<tr>
<td><strong>THE TOTAL AMOUNT OFF EPP (without military training)</strong></td>
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### Annotations of Components in the curriculum

#### 1. GENERAL TRAINING CYCLE

**Compulsory components**

**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.

**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.
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.

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.

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.

Compulsory components by decision of the Academic council of the University


2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

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.

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).

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.

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.

**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.

**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.

**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.

### Optional components

**Optional components by specialty (block 1)**

**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 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.

**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.
**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.

**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.

**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.

**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.

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

**Leadership and administering.** The aim of the discipline “Leadership and administering” is to provide students with knowledge about the essentiality of leadership origins theory, its types, styles of leader behavior, means of person’s leadership qualities realization, secrets of getting success, examples of success in business, agroindustrial complex, scientific life, art, sport, IT-sphere. Discipline includes a subject-specific component which allows students: to get knowledge of the leadership qualities self-improvement, means of the influence on the person’s behavior and consciousness, skills of group managing, usage of constructive manipulation and how to disable destructive manipulative ways of influence, how to build up well-balanced interpersonal relationship in the group of people.
EU Directives and standards in animal husbandry. The discipline envisages the study of EU Directives and state regulatory documents on livestock production technologies. A student must know the requirements of state normative documents (laws, regulations, standards, recommendations, instructions) and EU countries regarding the production of livestock products, be able to assess its compliance with these requirements in order to obtain quality products.

Optional components by specialty (block 2)

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.

Radiobiology. The purpose of the discipline "Radiobiology" is to prepare a specialist who can highly assess the radiation situation and develop measures to ensure the safety of animal husbandry in contaminated areas with radioactive substances and obtaining "pure" from the radionuclides of livestock products.

Biometric data processing. The purpose of formation of future specialists of theoretical knowledge and practical skills on the use of mathematical and statistical methods in animal husbandry.

Botanics. The discipline allows students to get acquainted with patterns of plants and vegetation as an essential bioenergy component of biosphere. By the end of their botanics classes the students will learn methods of independent work with a microscope, individual production of medicines as well as cellular, tissue, member and body level analysis, which has a considerable cognitive and practical importance. The aim of the botanics course is to teach students to work independently, not only in the laboratory but also in nature.

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.

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.

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Technology of livestock by-products. Studying of discipline involves familiarization with the processing and development of agricultural by-products as raw materials for animal farms, evaluation of its quality indicators and methods of preserving and storing.

Political science. The discipline, which helps students build a system of logically completed basic knowledge about policies and adequate skills as the basis for development of political consciousness and political culture; the discipline acquaints students with the essence and genesis of political science as a discipline, its main issues and the current state of their solution.

Standardization of animal products. The discipline studies international and national standardization of animal products and production processes; feeds, monitoring and quality control of agricultural products; liability borne by companies and officials for violations of existing standards.
2.5. EDUCATIONAL AND RESEARCH INSTITUTE
OF FORESTRY AND LANDSCAPE-PARK MANAGEMENT

**Director** - Doctor of Agricultural Sciences, Professor **Petro Lakyda**
Tel: (+38044) 527-85-28  E-mail: 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**

Educational-professional Program **“Forestry”**

Guarantor of the program – PhD of Agricultural Sciences, assistant professor Nataliia Puhrina
Tel.: (044) 527-82-82  E-mail: npuzrina@nubip.edu.ua

Graduating departments:

Forest restoration and meliorations
Tel.: (044) 527-87-47  E-mail: forest_crops@nubip.edu.ua
Head of the Department – PhD of Agricultural Sciences, professor Viktor Maurer

Silviculture
Tel.: (044) 527-82-82  E-mail: lisivnutstvo@gmail.com
Head of the Department – doctor of science, professor Anatolii Bondar

Forest Mensuration and Forest Management
Tel.: (044) 527-85-23  E-mail: bilous@nubip.edu.ua
Head of the Department – doctor of science, professor Andrii Bilous

**206 Park and Gardening Management**

Educational-professional Program **“Park and Gardening Management”**

Guarantor of the program – PhD of agricultural sciences, associated professor Olesia Pikhalo
Tel.: (+38044) 527-82-96  E-mail: olesya-pikhalo@nubip.edu.ua

Graduating departments:

Landscape Architecture and Phytodesign:
Tel.: (044) 527-85-47, E-mail: okolesnichenko67@gmail.com
Head of the department - Doctor of biological sciences, professor Olena Kolesnichenko

Botany, Dendrology and Forest Tree Breeding:
Tel.: (+38044) 527-85-18  E-mail: dendrology.nubip@gmail.com
Head of the department - Candidate of agricultural sciences, associated professor Yuri Marchyk
Forest restoration and meliorations  
Tel.: (044) 527-87-47  E-mail: forest_crops@nubip.edu.ua  
Head of the Department – PhD of agricultural sciences, professor Viktor Maurer

187 Woodworking and furniture technologies

Educational-professional Program «Woodworking and furniture technologies»

Guarantor of the program – Andrii Spirochkin, PhD  
Tel.: (044) 527-81-67  E-mail: spirochkin@nubip.edu.ua

Graduating department:

Wood products technologies and design  
Tel.: (044) 527-81-67  E-mail: opinchewska@gmail.com  
Head of the Department – doctor of science, professor Olena Pinchevska
Bachelor
Field of Knowledge "Agricultural science and food"
in specialty "FORESTRY"
Educational-professional program "Forestry"

Form of Training: Licensed number of persons:
  Full-time 125
  Part-time 140

Duration of Training 4 years
Credits ECTS 240
Language of Teaching Ukrainian
Qualification Bachelor of Forestry

The concept of training

Forestry 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," Training 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.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational (Educational-professional or Educational-scientific) 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»

Educational-professional program “Forestry”

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
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## 1. GENERAL TRAINING CYCLE

### Compulsory components

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<td>CC 8</td>
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**Total**: 45 credits

### Compulsory components EPP by decision of the Academic Council of the University

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**Total**: 31 credits

## 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

### Compulsory components EPP

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**Total**: 76 credits

### The total amount of Compulsory components: 152 credits

### Optional components EPP

#### Optional subjects by specialty

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<td>OB 1.2 Plant physiology</td>
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<td>OB 1.3 Economic theory</td>
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<tr>
<td>OB 1.4 Fundamentals of biotechnology</td>
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<td>OB 1.5 Non-timber forest resources</td>
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<tr>
<td>OB 1.6 Basics of hydrotechnical reclamation</td>
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<tr>
<td>OB 1.7 Landscape knowledge and geography Forestry</td>
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### CURRICULA AND PROGRAMS OF BACHELOR DEGREE

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<tr>
<td>OB 1.9</td>
<td>Forestry commodity</td>
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<td>OB 1.10</td>
<td>Urban landscaping</td>
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<tr>
<td>OB 1.11</td>
<td>Natural reserves</td>
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<td>OB 1.12</td>
<td>Biotechnics</td>
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<td>Politology and sociology</td>
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<td>OB 1.14</td>
<td>Accounting in Forestry</td>
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<td>OB 1.15</td>
<td>Fundamentals of forest exploitation</td>
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<td>OB 1.16</td>
<td>Hunting science</td>
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**Optional subjects by Student's Choice**

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**The total amount of Optional components**

- 60

### 3. OTHER TYPES OF TRAINING

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<td>CC 26</td>
<td>Production Practice</td>
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<td>CC 27</td>
<td>Preparation and defense of undergraduate final work</td>
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**THE TOTAL AMOUNT OF EPP**

- 240

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**Annotations of components in the curriculum**

### GENERAL TRAINING CYCLE

#### Compulsory components


**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.


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.

Compulsory components by decision of the Academic Council of the University


2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

Basics of professional training. Discipline acquaints students, especially freshmen, with the rights and duties of university students, history of Education and Research Institute of Forestry and Landscape-Park Management 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. Students are informed about mental health hygiene and general rules of working in the library and working with the book. Emphasis is placed on the study of traditional features of separate discipline groups, the need to study general, biological and special disciplines which are taught at the Education and Research Institute of Forestry and Landscape-Park Management.

**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.

**Mechanization of forestry work.** System of machines, material and technical base of complex mechanization of forestry works. General structure of forestry tractors. Machines for collecting and processing seeds. Structure and principle of tillage, sowing and planting machines. Machines for forest protection and protection. Technology of mechanized forestry works. Acquisition of machine-tractor units.

**Integrated forest fire management.** The course concentrated on integrated fire management at the context of climate change. Its incudes fire hazard theory and fire weather assessment, classification of forest fires by type and intensity and development. The subject is study both the world and Ukraine experiences in preventive forest-fire measures, the operating procedures of forest fire-fighting services, the role of modern technologies such as GIS and ERS in monitoring, detection, and rapid extinction of fires, techniques, strategy, and tactics of large forest fire suppression. The personal safety of firefighters during forest fire operations. Communication. Interagency cooperation on forest-fire suppression.

**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.


**Forest Mensuration.** Measurement of trees and wood products. Forest stands parameters and forest stands structure. Methods for determining stock and wood increment. Inventory forests. Basic approaches to non-timber forest resources inventory.


**Forest restoration.** Forest seed processing. Organization and maintenance of a permanent forest-seed base. Methods of harvesting and processing of forest seed material, storage, and pre-sowing seed preparation. Types of planting material. Organization and management of forest nurseries. Fundamentals of agrotechnology for planting material production. Technological features of production of different types of planting material. Forest plantations zoning and zoning of the territory of Ukraine on the success of forest natural regeneration. Approaches, methods, techniques of forest restoration. Technology and agrotechnology of establishment and cultivation of forest plantations of the main forest-forming species. Plantation forest production. Forest reclamation.

**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.
Forest melioration. Key eco-forestry and forest-meliorative principles that determine the technology of establishment and management of protective forest stands of various purpose (windbreaks, runoff regulative stands, ravine-gully forest stands, water-protective stands, garden-protective, forest stands along transport highways etc.). Soil erosion and soil erosion control. Agrotechnical peculiarities of establishment and management of protective forest stands on eroded lands. Sands, their stabilization and economic development.

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.


Optional components

Optional components by specialty

Forest selection and genetics. Methods of selection. Selective inventory of plants. Selection of main forest species. The basis of genetics.


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.

Fundamentals of biotechnology. It is one of the priority directions of modern forest biological science development, the main task of which is the use of biological processes, systems, cells, tissues and organs for the forests protection, creation of new forms of woody plants with specified characteristics, production of planting material, quality assessment of seed material, monitoring of phytosanitary condition of nurseries and forest plantations. The main task of discipline is to introduce with the basic technologies that allow to increase the efficiency of forestry through accelerated cultivation of trees, without viral and bacterial disease, searching for stable forms, creation of new ones, based on cell selection, as well as introduction and conservation of both species and certain varieties and individual trees.

Basics of hydrotechnical reclamation. The theoretical bases of hydrotechnical reclamation of forest lands, irrigation of forest nurseries and plantations. Sources of irrigation, soil salinity and measures to control it. Drainage by open channels and horizontal drainage system. Use of drainage and irrigation systems and special methods of hydrotechnical reclamation of forest lands.

Landscape knowledge and geography Forestry. History of landscape knowledge and understanding about the landscape. Methodology landscape. Classification of natural landscapes and significance. The landscape district of Ukraine and the value of the territory. Geography of Ukraine and Ukraine. The role of natural resources in the structure of natural and piece landscapes. Recreational landscapes of Ukraine.

Forest radioecology. The program of the course provides students with knowledge about safe forestry management in conditions of radioactive contamination of territories due to the Chernobyl accident. Radionuclide migration in forest ecosystems. Decontamination of lands, reservoirs contaminated with radionuclides. Modern equipment and instruments for assessing the level of radioactive contamination of forest stands, timber and forest products. Methods and technologies for reducing radionuclide intake into the human body, forestry products.


Natural reserves. History and the current camp of natural and natural resources help Natural reserves, international and national classifications of nature protection territories, procedure of establishing and reservation the territory and the object of the natural reserve fund. Management system for Natural reserves, official legislation on natural resources fund, structural and functional organization First, the measure of the natural reserve fund, the structure of the river bank, take care of the savings directly from the natural reserve fund.

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.

Biotechnics in hunting. The discipline determines the qualities and optimal ways of reproduction of hunting grounds, modern accounting methods, the development of effective ways of using resources and the practical implementation of this knowledge and skills in production, which is the basis for a highly efficient modern game management.

Politology and sociology. 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. 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.

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.


**Timber Transportation.** The program of the course provides familiarization with the principles of organization of export of timber products and operation of vehicles. The concepts of timber transport systems and cargo flows, technological and organizational structure of timber transport process, schemes and routes of transportation of timber products are considered. The methods of choosing and justifying the type of timber haulage trains and technological equipment, their basic parameters, dimensions, design schemes are studied.
Curricula and Programs of Bachelor Degree

Bachelor
Field of knowledge "Agricultural science and food"
in specialty “PARK AND GARDENING MANAGEMENT”
Educational-professional program “Park and Gardening Management”

Form of study | Limit of licensed number of students
--- | ---
Full-time | 100
Part-time | 60

Learning time
Credits | 240 ECTS
Language of teaching | Ukrainian
Qualification of graduates | Bachelor of Forestry and Garden-Park Management

The concept of training

Landscape-park management – an innovative, environmental, high-tech industry of Ukraine's economy, whose task is to design, shape and preserve landscapes and green spaces of public and private space. During the educational process, students acquire fundamental knowledge and comprehensive practical skills in using modern technologies to create, restore (protect) and protect the objects of urban green infrastructure, the Natural Reserve Fund of Ukraine, plantations of general, special and limited use. The main tasks of the training are to provide professional knowledge on the planning, creation and audit of green spaces (gardens, parks, forest parks) in order to improve their aesthetic and sanitary-hygienic condition.

The training of landscape-park management specialists is based on the principles of conservation of natural biological diversity at all levels - from genetic to species, landscapes and ecosystems; ensuring the continuous, highly efficient implementation of plantations of environmental, economic and social functions at local, national and global levels.

Practical training

The bases of practical training are educational, educational and scientific laboratories of the departments and departments of the University: Separated subdivision of NULES of Ukraine “Boyarka Forestry Research Station”, Botanical garden of NULES, research nursery of Forestry restoration and melioration department, Grishka Botanical Garden, Fomin Botanical Garden, SE of “Kyiv Landscaping” and others.

Proposed Topics for Bachelor theses

Project proposals for the reconstruction of the territory of landscape facilities.

Project of landscaping and landscaping of common (parks, meadows and parks, squares, boulevards, squares, etc.) and limited (medical, educational, small gardens, etc.) facilities.

Dendrological evaluation of the existing range of gymnosperms and the prospect of replenishing the collection of decorative forms in the Grishka National Botanical Garden.

Project of automatic irrigation system and landscape lighting in the territory of landscape facilities.
Features of reproduction of thuja western, boxwood evergreen, Japanese spirea and others.

Experience of growing planting material in a decorative nursery.

Development of ecological trails, functional zoning on created objects (parks-monuments of landscape art, nature monuments, arboretums, botanical gardens) of nature reserves of Ukraine.

Investigation of different types of flower beds, elements of topiary art in plantations of general and limited use of Ukraine.

Technological bases of creation of elements of topiary art.

Project proposals for landscape, planning, spatial organization of objects of various functional purpose.

**Academic rights of Graduates:** graduates can apply for Master's Degree Specialties and Educational (Educational-professional or Educational-scientific) 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»**

**Educational-professional program «Park and Gardening Management»**

<table>
<thead>
<tr>
<th>Code</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<td>3</td>
<td>4</td>
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<tr>
<td></td>
<td><strong>1. GENERAL TRAINING CYCLE</strong></td>
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<td><strong>Compulsory components</strong></td>
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<tr>
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<td>Plant physiology</td>
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<tr>
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<td>Biometry</td>
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<td>CC 11</td>
<td>Economic theory</td>
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<td>Exam</td>
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<tr>
<td>CC 12</td>
<td>IT Innovations</td>
<td>4,0</td>
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<td><strong>Compulsory components EPP by decision of the Academic Council of the University</strong></td>
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<td>CCU 1.3</td>
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<td>Floriculture</td>
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<td>CC 16</td>
<td>Lawns</td>
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<td>Exam</td>
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<tr>
<td>CC 17</td>
<td>Urban gardening</td>
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<tr>
<td>CC 18</td>
<td>Plant nurseries and seeds</td>
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<tr>
<td>CC 20</td>
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<tr>
<td>CC 21</td>
<td>Garden and park construction</td>
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<tr>
<td>CC 22</td>
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<tr>
<td>CC 23</td>
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<tr>
<td>CC 24</td>
<td>Mechanization of GPM</td>
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<td>Exam</td>
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<tr>
<td>CC 25</td>
<td>Natural reserves</td>
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<tr>
<td>CC 26</td>
<td>Engineering equipment in GPM</td>
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<td>OB 1.2</td>
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<tr>
<td>OB 1.3</td>
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<td>OB 1.4</td>
<td>Recreational forestry</td>
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</table>
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components


Curricula and Programs of Bachelor Degree


**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.

**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.


**Forest pedology.** Soil formation processes. Mineral and organic parts of the soil. The pattern of distribution of soils in Ukraine. Soil properties according to vegetation.

**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.

**IT Innovations.** Hardware and software of computers. Personal computers. The system software. Programming languages. Algorithmic and programming tasks. Solving problems on PC.

**Compulsory components by decision of the Academic Council of the University**

Basics 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. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

Breeding and Genetics ornamental woody plants. Methods of selection. Selection inventory of plantings. Selection of the main forest species.

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; study and application of the mastered technology of cultivation of crops in the protected soil in the conditions of industrial production.


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.

Urban gardening. Settlement landscaping is an integral part of the overall set of measures for planning, construction and improvement of settlements, which greatly contributes to the optimization of urban areas. In the course of studying the discipline students are introduced to the importance of urban and suburban green space in the complex of measures to combat adverse natural phenomena and in the aesthetic design and ordering of settlements. The course also examines the theoretical provisions for the creation of gardens of various functional purpose. In addition, practical skills in designing landscape gardens are provided, in compliance with the applicable rules and regulations.

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.

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.

**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.

**Park and gardening 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.

**Basics of professional training.** The discipline reveals to the first-year students the features of higher education, the rights and responsibilities of students of the university, the history of the Faculty of Forestry and history of the National University of Bioresources and Nature Management of Ukraine, the internal organization of the university, the organization of the educational process, forms of educational work according to the curriculum and general rules for using the book and library. Emphasis is placed on the traditional features of the study of particular groups of disciplines, established at the faculty, the need to study general, general, biological, and special disciplines.


**Mechanization of GPM.** Structure tillage, nasinnyezbyralnyh, sowing machines. Machines and tools for protection and protection from diseases, pests and fires some trees and forest park plantings.

**Natural reserves.** History and current state of nature conservation business as a branch, international and national classifications of nature protection territories, reservation mechanisms and procedure for creation of territories and objects of nature reserve fund, system of branch management, current legislation on nature reserve fund, structural and functional organization and modern network of nature reserve fund, structure of ecological network, conservation means and directions of use of nature reserve fund.

**Engineering equipment in GPM.** 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.

**Optional components**

**Optional components by specialty (block 1)**

**Landscape entrepreneurship.** Studying of the Legislation of Ukraine on gardening. Business plan: assembly and information. Organization of the enterprise with the use of landscape gardening..

**Basics of city planning.** Academic discipline has been developed to inform students about the basics of urban planning and place of landscape planning in its structure.
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.

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.

Basics of Arranging. In the scope of the course "Basics of Arranging" students learn the skills to create flower arrangements using natural plant material, whether live, canned or artificial. They acquire theoretical and practical knowledge of plant selection, harvesting, conservation rules and modifications. Particular importance is attached to the cultivation of artistic and aesthetic taste, the ability to work freely in different styles and directions of arrangement. In the course of studying the discipline students master the layout of the material according to the basic rules of compositional decision in European floral design.

Computer design. The main task of the discipline is to master modern computer programs used in designing gardening objects in order to visualize and demonstrate design solutions. Obtaining basic practical skills in using computer programs in landscape design.

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).

Decorative plants in greenhouses. 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.

Fundamentals 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.

Urban ecology and phyto-melioration. 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.

Inventory of garden-park management. Regulatory and legislative base is aimed at the development of garden and park facilities. Scientific and theoretical foundations of organization of garden-park objects. Organization and procedure of inventory of forest park objects. Inventory of green spaces in cities and other settlements. Use of inventory information for gardening objects.


Basics of composition. In the scope of the discipline "Fundamentals of Arrangement" students learn skills in creating flower compositions using natural plant material of live, canned or artificial. Master the theoretical and practical knowledge on the
selection of plants, their harvesting, rules of conservation and modification. Particular importance is given to the education of artistic and aesthetic taste, the ability to work freely in different styles and arrangements. In the process of studying the discipline, students master the layout of the material according to the basic rules of compositional decision in European flower design. Landscape inventory.

**Basics of accounting in gardening.** The discipline explores direct accounting as a management function. The main elements to be studied in the course are: the system of accounting accounts at enterprises of garden-park management of various forms of ownership, forms of accounting, reporting and the rule of double entry as the main rule of accounting. Audit issues are also considered.

**Optional components by specialty (block 2)**

**History of architecture and town planning.** The study of the complex of historical, planning and architectural features of the development of town-planning theories, normative and legal bases of modern city-planning, the principles of formation of urban landscape and architectural image of the city.

**Naturalization and acclimatization of non-native tree species.** Theoretical and practical aspects of naturalization and acclimatization of plants, skills of working with methods of estimation of success and prospects of introduction, bioecological features of woody plants in the conditions of introduction.

**Dendro-recultivation for recreational facilities.** Study of patterns of formation of biogeocenotic cover of urban areas and theoretical bases of optimization of urban ecosystems. The impact of urbanization.


**Forests of peri-urban areas.** The discipline reveals the bioecological features and sanitary hygienic properties of peri-urban forests. Establishment of permissible recreational loads in peri-urban forests and their recreational assessment are provided. Forestry and organizational activities conducted in peri-urban forests are studied.

**Renovation of urban landscapes.** Anthropogenic transformation of urban landscapes. Sources of urban landscapes pollution, effects and controls. Sustainability, conservation and restoration of urban landscapes for various uses of nature. Urban landscapes renovation methods.

**Floristics.** Skills for creating flower arrangements using natural plant material, whether live, preserved or artificial. Theoretical and practical knowledge of plant selection, harvesting, conservation and modification rules. They master the layout of the material according to the basic rules of the compositional decision in European floral design.

**Greenhouse plants.** Study of biological features of plant growth and development of subtropical and tropical growth regions, as well as arid climates; herbaceous and woody plants above marked areas with high decorative features.
Arbosculpture and topiary gardens. Historical aspects of the development of arbosculpture; technologies of formation of woody plants as arbosculpture; study of foreign experience in the creation and formation of topiary gardens and their classification.

Computer graphic design. The main task of the discipline is mastering the modern computer programs used in the design of landscape gardens in order to identify and demonstrate design solutions. Gaining basic practical skills in using computer software in landscape design.

Sketching in landscape design. Mastering rapid environmental imaging techniques. Studying the drawing process as a method of knowing reality and displaying it in graphic images. Contributes to the development of artistic qualities: to capture the moment, to choose a good appearance or composition, care and creativity. Details of botanical illustration. Image of plant compositions, architectural elements. Application of sketching to identify object idea, object project.
Bachelor
Field of Knowledge "Production and technologies"
in Specialty " WOODWORKING AND FURNITURE TECHNOLOGIES "
Educational-professional program «Woodworking and Furniture Technologies»

Form of Training: Licensed number of persons:
– Full-time 50
– Part-time 100
Duration of Training 4 years
Credits ECTS 240
Language of Teaching Ukrainian
Qualification Bachelor of Woodworking and Furniture Technologies

Concept of training

The training of specialists involves the mastering of knowledge and skills in the
development of constructions and technologies for the production of wood materials and
products, the definition of their characteristics and the level of quality, mastering the
methods of analysis of existing technological processes, planning and conducting research
aimed at optimization and improvement of technological processes of woodworking
industry. The basis of preparation is a systematic approach to the study of wood
processing technologies and the formation of students’ ability to use the equipment, wood
and energy resources rationally.

Practical training

The bases of practical training are educational, scientific and production laboratories
of the university’s departments and separate unit of NULES of Ukraine «Boyarka Forest
Research Station». Leading forest enterprises of the State Forestry Agency of Ukraine and
private woodworking and furniture enterprises.

Proposed Topics for Bachelor theses

Analysis of furniture design programs for bedrooms
Analysis of the square-edged lumber manufacturing process on the State enterprise
Features of the sectional doors manufacturing technological process
Justification of the design and technology of office furniture manufacturing
Analysis of the parquet from low-value wood manufacturing process
Proposals for improvement of door finishing process
Estimation of the floor coverings assortment expanding possibility
Features of the manufacture of parquet friezes
Analysis of the methods of applying paint and varnish materials on furniture products
Assessment of the possibilities of improving the technological process of decorating
kitchen products
**Academic rights of Graduates:** graduates can apply for Master’s Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of Graduates**

After graduating from the bachelor’s degree, graduates can be employed at forest enterprises of the State Agency for Forest Resources, state and commercial enterprises for the production and sale of construction materials, state and commercial woodworking and furniture enterprises
**Curricula and Programs of Bachelor Degree**

**Bachelor's Program and Curriculum in Specialty**

«Woodworking and furniture technologies»

**Educational-professional program «Woodworking and furniture technologies»**

<table>
<thead>
<tr>
<th>Code</th>
<th>Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>1. GENERAL TRAINING CYCLE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compulsory components EPP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC 1</td>
<td>Descriptive Geometry and Engineering Graphics</td>
<td>5</td>
<td>Exam</td>
</tr>
<tr>
<td>CC 2</td>
<td>Physics</td>
<td>9</td>
<td>Exam</td>
</tr>
<tr>
<td>CC 3</td>
<td>Higher Mathematics</td>
<td>8</td>
<td>Exam</td>
</tr>
<tr>
<td>CC 4</td>
<td>Computational Mathematics and Programming</td>
<td>8</td>
<td>Exam</td>
</tr>
<tr>
<td>CC 5</td>
<td>Chemistry (general and organic)</td>
<td>6</td>
<td>Exam</td>
</tr>
<tr>
<td>CC 6</td>
<td>Applied Mechanics (strength of materials, engineering)</td>
<td>7</td>
<td>Exam</td>
</tr>
<tr>
<td>CC 7</td>
<td>Principles Heating Engineering</td>
<td>4</td>
<td>Exam</td>
</tr>
<tr>
<td>CC 8</td>
<td>Electro Technology And Electric Drive</td>
<td>4</td>
<td>Exam</td>
</tr>
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<td>Total</td>
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<td></td>
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<td></td>
<td>Compulsory components EPP by decision of the Academic Council of the University</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCU 1</td>
<td>Foreign Language</td>
<td>4</td>
<td>Exam</td>
</tr>
<tr>
<td>CCU 2</td>
<td>Physical education</td>
<td>4</td>
<td>Test</td>
</tr>
<tr>
<td>CCU 3</td>
<td>Ukrainian for professional purposes</td>
<td>4</td>
<td>Exam</td>
</tr>
<tr>
<td>CCU 4</td>
<td>Labour and Life Safety</td>
<td>4</td>
<td>Exam</td>
</tr>
<tr>
<td>CCU 5</td>
<td>Philosophy</td>
<td>4</td>
<td>Exam</td>
</tr>
<tr>
<td>CCU 6</td>
<td>Sociology</td>
<td>4</td>
<td>Exam</td>
</tr>
<tr>
<td>CCU 7</td>
<td>Economic theory</td>
<td>4</td>
<td>Exam</td>
</tr>
<tr>
<td>CCU 8</td>
<td>Legal Personal Culture</td>
<td>4</td>
<td>Exam</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td><strong>32</strong></td>
</tr>
</tbody>
</table>

|      | **2. SPECIAL (PROFESSIONAL) TRAINING CYCLE**                                                                                         |                        |                  |
|      | Compulsory components EPP                                                                                                           |                        |                  |
| CC 9 | Wood Science                                                                                                                        | 4                      | Exam             |
| CC 10| Equipment of The Woodworking                                                                                                        | 5                      | Exam             |
| CC 11| Technology Of The Sawmills And Woodworking Industries                                                                               | 6                      | Exam             |
| CC 12| Technology Of Wood Drying And Protection                                                                                           | 8                      | Exam             |
| CC 13| Ecology                                                                                                                             | 4                      | Exam             |
| CC 14| Principles Of Automation And AVP                                                                                                    | 4                      | Exam             |
| CC 15| Computer Graphics                                                                                                                    | 4                      | Exam             |
| CC 16| Technology Of Wood Products                                                                                                        | 7                      | Exam             |
| CC 17| Fundamentals of professional training                                                                                               | 4                      | Exam             |
| CC 18| Macromolecular Chemistry                                                                                                            | 4                      | Exam             |
| CC 19| Designing Of The Woodworking Enterprises                                                                                             | 4                      | Exam             |
| CC 20| Technology of joiner's products                                                                                                     | 5                      | Exam             |
| CC 21| Economy woodworking industry                                                                                                        | 5                      | Exam             |
| CC 22| **Materials Science**                                                                                                               | 4                      | Exam             |
| CC 23| Design of wood products                                                                                                             | 5                      | Exam             |
| Total|                                                                                                                                 |                        | **73**           |

The total amount of Compulsory components: **156**

Optional components EPP

**Optional components by specialty (block 1)**

| OB 1.1 | Wood composite materials technology                                                                                           | 4                      | Exam             |
| OB 1.2 | Metrology, Standardization And Certification                                                                                | 4                      | Exam             |
| OB 1.3 | Technology of structural materials                                                                                           | 4                      | Exam             |
| OB 1.4 | Marketing in the woodworking industry                                                                                         | 4                      | Exam             |
| OB 1.5 | Technology Of Wooden House Building                                                                                        | 4                      | Exam             |
| OB 1.6 | Protective Treatment Of Wooden Structures                                                                                     | 4                      | Exam             |
| OB 1.7 | Modifying of wood and wood-based materials | 4 | Exam |
| OB 1.8 | Management in the wood-processing enterprises | 4 | Exam |
| OB 1.9 | Furniture production of wood-composite materials | 5 | Exam |
| OB 1.10 | Technology of Protective and Decorative Coatings | 5 | Exam |
| OB 1.11 | Organization Of woodworking industry | 4 | Exam |
| OB 1.12 | Technology of manufacturing structural wood elements | 4 | Exam |
| OB 1.13 | Fundamentals of Accounting and Auditing on woodworking enterprises | 4 | Exam |
| **Total** | **54** | | |

**Optional components by specialty (block 2)**

| OB 2.1 | Technology of glued materials | 4 | Exam |
| OB 2.2 | Product quality management | 4 | Exam |
| OB 2.3 | Wood panels technology | 4 | Exam |
| OB 2.4 | Commercial activity of woodworking enterprises | 4 | Exam |
| OB 2.5 | Technology and calculation of small architectural forms | 4 | Exam |
| OB 2.6 | Wood protection technology and equipment | 4 | Exam |
| OB 2.7 | Chemicals for wood modification | 4 | Exam |
| OB 2.8 | Entrepreneurship and business culture | 4 | Exam |
| OB 2.9 | Manufacture of solid wood furniture | 5 | Exam |
| OB 2.10 | Chemical and technological foundations of polymer coatings | 5 | Exam |
| OB 2.11 | Regulation of woodworking enterprise production activity | 4 | Exam |
| OB 2.12 | soft furniture products technology | 4 | Exam |
| OB 2.13 | Organization of accounting activities at woodworking enterprises | 4 | Exam |
| **Total** | **54** | | |

**Optional components by Student's Choice**

| OS 1 | Discipline of wide choice 1 | 3 | Exam |
| OS 2 | Discipline of wide choice 2 | 3 | Exam |
| **Total** | **6** | | |

**The total amount of Optional components** 60

3. OTHER TYPES OF TRAINING

| CC 24 | Academic Practice | 16 | Test |
| CC 25 | Production Practice | 3 | Test |
| CC 26 | Preparation of Bachelor’s Work | 4 | |
| CC 27 | State Attestation | 1 | |

**THE TOTAL AMOUNT OF EPP (without military training)** 240

Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components


Applied Mechanics (strength of materials, engineering). The objects studied in the discipline of materials strength, their calculation schemes, cross-sectional geometric properties, mechanical properties of materials and the laws of deformation, strength criteria, methods of calculation under static tension, compression, torsion, bending material, methods of calculations under dynamic load and elastic systems fluctuations.

Principles of Heating Engineering. The main positions of the technical thermodynamics. Laws of theories of heat and mass exchange, methodology of the heat processes calculation occurring in thermal power installations of the different purposes, principles of operation and design of thermal systems, which are used in woodworking industry, means of the secondary and renewable energy sources use Principles of Automation and AVP. Principles of basic elements of automatic devices work, their advantages and disadvantages, applications. Principles of automatic control systems, management facilities properties.


Compulsory components by decision of the Academic Council of the University

Annotations of components: Philosophy, Ukrainian language for professional purposes, Foreign language, Physical education, Safety of labor and vital activity, Legal culture of a personality see Section 2.1.

Sociology. Social essence. Formation of human behavior in the process of work activity and place in the system of motivation and social control. The role of the workforce and small group in achieving the goal of production.
**Economic Theory.** The study of discipline provides students with the assimilation of sound economic knowledge by future specialists, the formation of the logic of economic thinking and economic culture, teaching them basic methods of cognition and analysis of economic processes, the ability to make sound decisions about economic problems related to their future activities.

### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

#### Compulsory components

**Wood Science.** Features of the micro-and macroscopic structure of wood. The chemical composition of wood and its use as a chemical raw. Physical and mechanical properties of wood required for the improvement of the existing and creation of new processes. Classifications of wood defects. Classification of forest products and their main characteristics.

**Equipment of the Woodworking.** Basic theories of wood cutting and wood materials, cutting as a workflow of the woodworking machines, wood cutting tools, general information about the hardware of the woodworking enterprises, functional constituent parts and mechanisms of the woodworking machinery, wood cutting machine for general purpose, special equipment of the woodworking industries.


**Technology of Wood Drying and Protection.** The discipline studies the problems and stages of the design, the selection of wood drying methods, the selection of equipment for drying, the method for calculation of the performance of the wood drying chambers of the different designs, thermal and aerodynamic calculation of the wood dryers; performance of heat and circulation equipment, planning of the drying shops.


**Principles Of Automation and AVP.** Principles of the main elements of automatic devices, their advantages and disadvantages, applications. Principles of automatic control systems, properties of control objects.

**Computer Graphics.** The course studies the effective work with documents in MS Word, the practical application of MS Excel spreadsheet (approximation of dependencies, analysis and optimization, linear programming tasks) schemes preparation in Visio system, the use of the statistical software package SPSS.

**The Technology of Wood Products.** Principles of wood products construction taking into the consideration the current requirements of the technical aesthetics, rational consumption of materials and labor force and the technology of their production as a system of rules and methods of wood materials processing into the products based on the modern achievements of science, research and compilation of the best practices. Ways and methods of the technological problems solving at the up-to-date level with the use of research elements. Objectives and methods of products quality management.

**Fundamentals of professional training.** The discipline reveals the peculiarities of studying in higher educational institutions, the students' rights and responsibilities, the rights of the students in the university, the history of the Education and Research Institute of Forestry and Park Gardening and the history of the National University of Life and Environmental Sciences of Ukraine, the internal organization of higher education, the organization of the educational process, the form of educational work in accordance with the educational plan, the hygiene of mental work and the general rules of work with the
book and the library. It is emphasized on the traditional features of the certain groups disciplines study that have developed at the institute, the need to study general, general engineering and special disciplines.

**Macromolecular Chemistry.** The main classes of organic compounds, their significance and distribution in nature. Organic constituents of wood, adhesives, resins and other binders. Relationships between structure, properties and biological functions of organic substances and macromolecular compounds.

**Designing Woodworking Enterprises.** Scientific basis of design, technological processes design, design of conveyor lines, designing the instrumental, fitter- mechanical and other service shops, the calculation of vehicles; ventilation, heating of wood processing and other shops, forest resources of Ukraine and ways of their use improvement. The tasks of the discipline is the study of the methodological, organizational and scientific bases of industrial buildings design, the bases of technological processes design in the production, composition and volume of the project work, methods of their implementation, composition of the main project-normative documentation, principles of the computer-aided design.

**Technology of joiner's products.** The task of the discipline is to study the constructions and requirements for various groups of joinery products, their manufacturing technology, the main woodworking equipment used in the manufacture of joiner's products, the study of the directions of rational and integrated use of raw materials and the use of wood substitutes in joinery products.

**Economy of woodworking industry.** Subject, object, method and discipline task; the concept, the mechanism of formation and utilization of fixed and circulating capital. The state and economic analysis of technical equipment and technology. Theory of production, consumption, price, profit, profitability. Markets of resources, capital, labor, and finance. The basic laws of economics and mechanism of action.

**Materials Science.** Course is for general technological training of future professionals, namely - the laying of knowledge on the definition of properties and the choice of material for the manufacture of parts and the technology of their processing for the purpose obtaining the specified properties.

Optional components

Optional components by specialty (block 1)

Wood composite materials technology. The main task of the discipline is to study the technologies of integrated and rational use of primary and secondary raw materials in the production of glued materials, improving product quality, increasing productivity, reducing the cost of production.

Metrology, Standardization And Certification. Content of the discipline: quantitative methods for quality assessment and standardization of timber and saw production, wood products, machine tools and equipment, and certification of technological processes in wood processing; product quality management; technical means of measurement; responsibility for non-compliance with standards.

Technology of Structural Materials. The main task of the discipline is to study raw materials for the production of slabs, requirements for the size and quality of wood particles. An overview of products from chopped wood, features of technology, design of molds. Classification and properties of wood panels.


Technology of Wooden House Building. Subject contents: the current status of the wooden constructions production, wooden house building, architectural and planning decision and the design of wooden houses, types of walls, floors and roofs, carpentry in construction, carpentry on the building, the ways of increasing the durability of wood structures, mechanical testing methods, advanced products design and use of wood imitation, preparatory work before the production. The main objective of the discipline is the study of structures and requirements for the different wooden buildings, their production technology, rational and integrated use of raw materials, the study of the basic structural elements the wooden house is made of.

Protective Treatment of Wooden Structures. History of wood impregnation industry development; the purpose and technological goals of the protective wood processing; properties of wood that have an impact on the processes of protective woodworking; classification of fungi that damage wood; types of wood decay; conditions of mushroom development; a brief description of the destructive insects; characteristic of wood damage; antiseptics; flame retardants; methods of protection of round timber during storage on logs and warehouses; rules of arrangement of foundations, floors of the first floor, walls, floors and wooden roofs; basement waterproofing; preventive measures and control of detected house mushrooms; classification of wood impregnation methods; wood impregnation equipment; transport and auxiliary equipment; autoclaves; safety rules when working with protective substances; rules of industrial sanitation on wood impregnating enterprises.

Modifying Wood and Wood Materials. Structure, composition, chemical, physical, mechanical and technological properties of modified wood, raw material for the modified wood manufacture. Production and application technology of modified wood.


**Furniture Production of Wood-composite Materials.** The relevance of the discipline is the need to form students' knowledge of organizational principles, techniques, design training of furniture production, the theory of design and design - design of furniture, ensuring: rational use of material and labor resources; high social and aesthetic indicators of furniture quality; operational qualities and competitiveness of furniture; application of design automation tools. As a result of studying the discipline, the student should know: - the content of the design preparation of furniture production; - terminology and regulatory technical documentation; - organizational forms and process of furniture design; - the content and methodology of furniture designing; - properties, characteristics of structural materials and components of furniture; - basic rules of furniture design and execution of design documentation; - basics of automation of furniture design and design preparation of furniture production; - methods and principles of quality control of furniture products; - organization of testing, certification and implementation of furniture products.

**Technology of Protective and Decorative Coatings.** Varnishes, paints, enamels, prime ground coat, putties. Adhesion and forces of tension. Methods of causing and consolidation of seal coat. Technology and equipment are for finishing of wood. Calculation of the productivity of equipment.


**Fundamentals of Accounting and Auditing on Woodworking Enterprises.** The discipline that studies the forms of economic laws at the level of the individual entity. The course involves the study of the functioning of inputs to determine the effectiveness of investments in efficient operation under conditions a market economy, the development of creative approaches to reasoning and management decision-making and analysis of the economic efficiency considering as an example woodworking industry enterprise.

**Optional components by specialty (block 2)**

**Technology of Glued Materials.** The main task of the discipline is to study the technologies of integrated and rational use of primary and secondary raw materials in the production of glued materials, improve product quality, increase productivity, reduce the cost of production.

**Product Quality Management.** The purpose of studying the discipline is to form a system of knowledge for students in the theory and methodology of quality management, principles of construction and functioning of quality management systems; ensure the study of regulatory, organizational and economic issues regarding modern quality management systems. The Quality Management course covers a wide range of problems and is therefore associated with virtually all disciplines taught at universities, as its purpose is not only to improve the consumer characteristics of products and services, but also to improve the quality of socio-economic and psychological aspects of people's lives, to which all subjects and sciences are oriented.
Wood Panels Technology. The course gives the definition of wood panels, which are effectively used in various industries. There are no disadvantages inherent in natural wood of low quality wood. The overview of products made of crushed wood, features of technology, mold design, classification and properties of wood panels.

Commercial Activity of Woodworking Enterprises. The purpose of the discipline is to develop students' theoretical and practical skills in the organization and planning of commercial activity of woodworking enterprise, the use of principles and tools to justify management decisions in commercial activity.

Technology and Calculation of Small Architectural Forms. The main task of the discipline is the study of structures and requirements for various wooden elements, technology of their production, the study of rational and integrated use of raw materials, the study of basic structural elements, which consist of small architectural forms (arbors, arbors, pergolas, benches, etc.). As a result of studying the discipline, the student should know the technical solutions and structures of wooden small architectural forms, features of technology of production of wooden structures, technological requirements for wooden materials, technology of manufacturing of individual elements, connections and basics of design and be able to determine costs raw materials for the production of individual elements and parts of products, design technological processes for the production of parts for the IAF of wood, to calculate the specification of raw materials, to choose and calculate auxiliary manufacturing, auxiliary and transport equipment, design of production processes LFA-s of various designs.

Wood Protection Technology and Equipment. The purpose and technological goals of the protective wood processing. Biological factors of destruction of wood; characteristic of wood damage by fungi and insects. Wood preservatives, chemical compounds, antiseptics and flame retardants. Physical processes during wood impregnation; action of capillary forces; diffuse movement of molecules; the action of excess pressure. Technological features of different methods of wood impregnation; schematic diagrams of the organization of production sites. Wood-impregnating equipment: basic, auxiliary and transport. Rules of safety at work with protective substances; rules of industrial sanitation at wood-impregnating enterprises.

Chemicals for Wood Modification. The purpose of the course is to provide the applicants with knowledge in the field of development of chemicals for modification of wood and wood materials, aimed at programmed improvement of natural properties of natural wood and expansion of ways of its use. In the course of studying the discipline, the student must learn the basic concepts of theoretical organic chemistry, classes of organic compounds, rules of nomenclature and basic methods of preparation, the relationship between classes and the main directions of practical use of the most important organic compounds; the relationship between the structure of a substance and its chemical and physical properties. Student should be able to write formulas of organic compounds by their names in rational and radical functional (IUPAC) nomenclature; write the equations of chemical reactions that underlie the methods of extraction and use of organic compounds, explain the basic mechanisms of the flow of chemical reactions of organic substances.

Entrepreneurship and Business Culture. The purpose of the discipline is to develop students' theoretical and practical skills in creating a woodworking or furniture company, study the environment and competition and types of business activities, relevant to the current situation, ethical problems of business, the formation of business culture in woodworking enterprise.

technological process and cost standards of material and labor resources. The quality of the furniture. Indicators and quality control of furniture.


**Regulation of Woodworking Enterprise Production Activity.** The purpose of the discipline is to acquire a complex knowledge of modern and effective forms and methods of management and organization of production at woodworking enterprises, formed with the help of special theoretical and practical training in the study of industrial activity of the enterprise. As a result of studying the discipline, the student should know: the basics of using the tools and objects of labor of woodworking; principles of rational use of equipment and production facilities, raw materials and materials; basics of labor normalization; organization of work in production and systems of remuneration; basics of innovative and commercial activity; legal aspects of the production activity and the relationship of the enterprise with employees; ways to increase production efficiency.

**Soft Furniture Products Technology.** The course covers the basics of upholstered furniture technology, including the basic properties of polymers, their methods of synthesis and processing, and textiles, including raw materials, properties and test methods. The following topics are discussed. The structure of the polymer and its relationship to specific properties. Mechanisms of macromolecule formation and plastic production technology. Viscoelastic properties of polymers. Processing of plastics. Textile raw materials and fabric production methods. Dyeing and other ways of modifying textiles. Methods of testing the properties of fibers and textiles. Sections and features of upholstered and upholstered furniture. Aspects of furniture functioning. The general scheme of production process of the selected frame furniture. Characterization of individual stages technological process of production. Preparation, processing and application of granular and bent elements, curved, composite and plate devices, tools, principles of hanging elements. The characteristics of the joints used are drilling, toning, bending and other operations. Characteristics of upholstery materials. Upholstery Technology. Finishing technologies - properties, limitations of technology. Errors of technological operations and ways of their correction. Accuracy of technological operations.

**Organization of Accounting Activities at Woodworking Enterprises.** The purpose of the discipline is to master the students of the theoretical foundations of accounting with its features in woodworking enterprises, to reveal the essence of accounting, its role and place in the economic management of woodworking. As a result of studying the subject, the student should know: theoretical foundations of accounting activity of the enterprise; classification and use of accounting documentation in production activities; peculiarities of accounting of means and objects of work, and also other economic means; use the accounting system to reflect the activity of the enterprise; forms of conducting and organization of accounting at the enterprise.
2.6. FACULTY OF VETERINARY MEDICINE

Dean – Mykola 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
Adress: building № 12, room №324 “G”

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

211 Veterinary Medicine

Educational - professional program «Veterinary Medicine»

Guarantor of the program – Danilov Vasyl Benedyktovych, Candidate of Veterinary Science, Associate Professor
Tel.: (044) 527 – 82 - 98   E-mail: danylov.vasyl@gmail.com

Graduating departments:

Anatomy, histology and pathomorphology animal named after acad. V.G.Kasyanenko
Tel.: (044) 527-86-17. E-mail: museum@nubip.edu.ua
Head of Department – Doctor of Veterinary Sciences, Professor Melnyk Oleg Petrovyoch

Obstetrics Gynaecology and Animal Reproduction Biotechnology
Tel.: (044) 527-83-46   E-mail: akusherstvo@nubip.edu.ua
Head of Department- Candidate of Veterinary Science, Associate Professor Valchuk Oleksandr Anatoliyovich

Epizootiology, microbiology and virology
Tel.: (044) 527-80-10   E-mail: epizootology@nubip.edu.ua
Head of Department - Candidate of Veterinary Sciences, Associate Professor Melnyk Volodymyr Vasylovych

Pharmacology, parasitology and tropical veterinary
Tel.: (044) 527-83-65   E-mail: parma@nubip.edu.ua
Head of Department - Candidate of Veterinary Sciences, Associate Professor Ishschenko Vadym Dmytrovyich

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 and pathophysiology named prof. I.O Povazhenka
Tel.: (044) 527-88-68   E-mail: chirurgia@nubip.edu.ua
Head of Department - Doctor of Veterinary Sciences, Associate Professor Malyuk Mykola Oleksiyovych
Veterinary hygiene named prof. A.K. Skorokhodko
E-mail: kucheruk_md@nubip.edu.ua
Head of Department - Candidate of Veterinary Science, Associate Professor
Kucheruk Mariia Dmitryvna
Bachelor
field of knowledge "Veterinary"
in speciality "VETERINARY MEDICINE"
Educational - professional program «Veterinary Medicine»

Form of Training: Licensed number of persons:
- full-time studies 250
Duration of training 3 years
credits 180 ECTS
Language of training 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 (Educational-professional or Educational-scientific) 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”

### Educational-professional program “Veterinary Medicine”

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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### 1. GENERAL TRAINING CYCLE

**Compulsory components EPP**

<table>
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<tr>
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<th>Name</th>
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<tbody>
<tr>
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<tr>
<td>CC 2</td>
<td>Organic Chemistry</td>
<td>2</td>
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</tr>
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<td>CC 3</td>
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**Compulsory components EPP by decision of the Academic Council of the University**

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<td>CCU 2</td>
<td>Foreign Language (for professional purposes)</td>
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### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components EPP**

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<tr>
<td>CC 8</td>
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<td>Animal physiology</td>
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<td>CC 10</td>
<td>Basics of biosafety, bioethics and veterinary ecology</td>
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<tr>
<td>CC 11</td>
<td>Veterinary Sanitation and Hygiene</td>
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<td>CC 12</td>
<td>Veterinary Microbiology</td>
<td>2</td>
<td>exam</td>
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<td>Veterinary Immunology</td>
<td>2</td>
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</tr>
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<td>CC 14</td>
<td>Veterinary virology</td>
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</tr>
<tr>
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<td>Biotechnology in veterinary medicine</td>
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<td>Pathological Physiology</td>
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<tr>
<td>CC 17</td>
<td>Obstetrics, Gynaecology and Animal Reproduction Biotechnology</td>
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<tr>
<td>CC 21</td>
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<td>exam</td>
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<tr>
<td>CC 22</td>
<td>Parasitology and invasive disease</td>
<td>4</td>
<td>exam</td>
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<tr>
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<td>Pathological anatomy and dissection</td>
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<td>CC 24</td>
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<tr>
<td>CC 25</td>
<td>Veterinary Pharmacology</td>
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<td>exam</td>
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<tr>
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<td>Clinical diagnostics animals diseases</td>
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<td>exam</td>
</tr>
<tr>
<td>CC 28</td>
<td>The organization and economics of veterinary affairs</td>
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<tr>
<td>CC 29</td>
<td>Veterinary toxicology</td>
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<tr>
<td>CC 30</td>
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<tr>
<td>CC 31</td>
<td>Basics of breeding animals</td>
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<td>CC 32</td>
<td>History of Veterinary Medicine</td>
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<td>test</td>
</tr>
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<td>CC 33</td>
<td>Veterinary radiobiology</td>
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<td>test</td>
</tr>
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<td>Medicinal Herbs</td>
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</tr>
<tr>
<td>CC 35</td>
<td>Professional Ethics</td>
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</tr>
<tr>
<td>CC 36</td>
<td>Genetics in Veterinary Medicine</td>
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</tbody>
</table>
Annotations of components in the curriculum

**GENERAL TRAINING CYCLE**

**Compulsory components EPP**

**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, redosimetria, 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.
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.

Latin. Latin grammar, spelling rules and specific terms of veterinary medicine.

Compulsory components by decision of the Academic Council of the University

Annotations of components: History of Ukrainian Statehood, Ukrainian language for professional purposes, Foreign language (for professional purposes), Physical education, Safety of labor and vital activity see Section 2.1.

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components EPP


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.


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.


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.
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-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.


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.


**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 phenoloxysacids and phenol. Toxicology of poisonous substances vegetable and animal origin. Poisoning by poor quality animal feed. Chemical and toxicological analysis.

**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.


**History of Veterinary Medicine.** History of Veterinary in the primitive community, in Kievian 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.


**Medicinal Herbs.** 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.


Optional components EPP

Optional components by specialty (block 1)

Fundamentals of 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.

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.

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.


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 judicial Veterinary.** 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.

**Fundamentals 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

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**Optional components by Student's Choice**

**Nutrition and maintenance of small pets.** Nutrition is a science that studies the rules of feeding. The study of this discipline provides mastering the basics of rational nutrition of animals, depending on their physiological features, age and physiologic condition. Neglecting of the basic rules of rational nutrition, excessive physical activity, or vice versa, decreasing in the motor activity of animals lead to various diseases. The main task of dietary nutrition is to select an effective, balanced diet, which will improve the general condition of the animal during intense stress, and will help to prevent diseases of the digestive and other body’s systems. Also considered are the basics of canine, felinology, ornithology, modern methods of keeping, grooming, feeding, drinking, breeding and use of dogs, cats, birds, rodents, reptiles kept at home, issues of humane treatment of pets, basics of ethology and dog training , skin care and its derivative animal health control.

**Food Safety and Quality.** The criteria of food quality and safety. Ways and sources of harmful substances intake, mechanism of its destructive influences and means of resistance. Theoretical and methodological principles of food safety. Overview of selected quality and safety indicators.
2.7. FACULTY OF ALIMENTARY TECHNOLOGIES AND MANAGING BY QUALITY OF PRODUCTS OF AGRICULTURAL COMPLEX

Dean – doctor of sciences, professor Larissa Bal-Prylypko
Phone: (044) 527-89-50, E-mail: 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

Educational-professional Program «Food Technologies»

The guarantor of the program - candidate of engineering sciences, associate professor Alexander A. Savchenko
Phone: (044) 527-88-85 E-mail: slob2210@ukr.net

Graduating department:

Technology of meat and fish products, and of sea foods
Phone: (044) 527-88-85, E-mail: slob2210@ukr.net
Head of the chair – candidate of engineering sciences, associate professor Alexander A. Savchenko

229 Public health

Educational and professional program "Nutrition of healthy diet"

The guarantor of the program is Candidate of Medical Sciences, Associate Professor Oleg Shvets
Phone: (044) 527-88-85 E-mail: slob2210@ukr.net

Graduating department:

Meat, fish and seafood technologies
Phone: (044) 527-88-85 E-mail: slob2210@ukr.net
Head of the Department - Candidate of Technical Sciences, Associate Professor Alexander A. Savchenko
Bachelor

Field of knowledge of “Manufacturing and technologies”
in Specialty “FOOD TECHNOLOGIES”
Educational-professional Program «Food Technologies»

Form of training: Licensed number of persons:
– daytime 150
– extramural 50
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 importance 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 fundamental 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

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 work shop of productivity 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 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 (Educational-professional or Educational-scientific) 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»

**Educational-professional Program «Food Technologies»**

<table>
<thead>
<tr>
<th>Code n/a</th>
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<td>2.3</td>
<td>Organic chemistry</td>
<td>6.0</td>
<td>exam</td>
</tr>
<tr>
<td>2.4</td>
<td>Physical and colloid chemistry</td>
<td>6.0</td>
<td>exam</td>
</tr>
<tr>
<td>3</td>
<td>Engineering and computer’ graphics</td>
<td>7.0</td>
<td>exam</td>
</tr>
<tr>
<td>4</td>
<td>Physics</td>
<td>5.0</td>
<td>exam</td>
</tr>
<tr>
<td>5</td>
<td>Biochemistry</td>
<td>6.0</td>
<td>exam</td>
</tr>
<tr>
<td>6</td>
<td>Heat engineering</td>
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<tr>
<td>7</td>
<td>Electric engineering</td>
<td>3.0</td>
<td>exam</td>
</tr>
<tr>
<td>8</td>
<td>Education in universities</td>
<td>3.0</td>
<td>exam</td>
</tr>
<tr>
<td>9</td>
<td>Ethics and culture of nutrition</td>
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<td>exam</td>
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**Compulsory components by decision of the Academic Council of the University**

<table>
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<th>Amount of credits ECTS</th>
<th>The final control</th>
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</tr>
<tr>
<td>11</td>
<td>Ukrainian language (by profession)</td>
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</tr>
<tr>
<td>12</td>
<td>History of Ukrainian culture</td>
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<td>exam</td>
</tr>
<tr>
<td>13</td>
<td>Foreign language</td>
<td>5.0</td>
<td>test, exam</td>
</tr>
<tr>
<td>14</td>
<td>Jurisprudence</td>
<td>3.0</td>
<td>exam</td>
</tr>
<tr>
<td>15</td>
<td>Philosophy</td>
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<tr>
<td>16</td>
<td>Fundamentals of religion</td>
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<tr>
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<td>Fundamentals of psychology</td>
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</tr>
<tr>
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<td>Physical training</td>
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2. **SPECIAL (PROFESSIONAL) TRAINING CYCLE**

**Compulsory components**

<table>
<thead>
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<tr>
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<tr>
<td>23</td>
<td>Technology of producing of polysaccharides and their use in food industry</td>
<td>3.0</td>
<td>exam</td>
</tr>
<tr>
<td>24</td>
<td>Automation of process of manufacturing</td>
<td>3.0</td>
<td>exam</td>
</tr>
<tr>
<td>25</td>
<td>Safety of work and life</td>
<td>4.0</td>
<td>exam</td>
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<td>27</td>
<td>Standardization, metrology, certification and quality management</td>
<td>4.0</td>
<td>exam</td>
</tr>
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<td>28</td>
<td>R&amp;D work of students</td>
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<td>exam</td>
</tr>
<tr>
<td>29</td>
<td>Economy of enterprises</td>
<td>3.0</td>
<td>exam</td>
</tr>
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<td>Theoretical base of alimentary technologies</td>
<td>3.0</td>
<td>exam</td>
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<td>31</td>
<td>Fundamental principles of mechanics and reliability of equipment used in the branch-industry</td>
<td>3.0</td>
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<td>Applied mechanics</td>
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<tr>
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</tr>
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<tr>
<td><strong>Total</strong></td>
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### The total amount of mandatory components

| Optional components | 180 |

#### Optional components of specialty (block 1 "Technology of meat and meat products")

| OB 1 | Political science and fundamentals of sociology | 3,0 | exam |
| OB 2 | Fundamentals of animal husbandry | 4,0 | exam, CP |
| OB 3 | Fundamentals of physiology and hygiene of nutrition | 3,0 | exam |
| OB 4 | Hygiene and sanitary at enterprises that produce foods | 3,0 | exam |
| OB 5 | Management at enterprises of the branch-industry and fundamentals of business undertakings | 3,0 | exam |
| OB 6 | Fundamentals of construction in industry | 3,0 | exam |
| OB 7 | Physicochemical and technical base of processes of refrigeration | 3,0 | exam |
| OB 8 | Technological calculations and accounting in the branch-industry | 3,0 | exam |
| OB 9 | Industrial ecology of reprocessing enterprises | 3,0 | exam |
| OB 10 | Control of quality and safety of production of branch-industry | 3,0 | exam |
| OB 11 | Physicochemical and biochemical processes of reprocessing of meat | 4,0 | exam |
| OB 12 | Technologies meat and meat products | 13,0 | exam, CP |
| OB 13 | Projecting of enterprises of meat-processing industry | 3,0 | exam, CP |
| OB 14 | Microbiology of meat and meat products | 3,0 | exam |
| **Total** | **54** |

#### Optional components of specialty (block 2 "Fish and Seafood Technology")

| OB 1 | Political science and fundamentals of sociology | 3,0 | exam |
| OB 2 | Fundamentals of animal husbandry | 4,0 | exam, CP |
| OB 3 | Fundamentals of physiology and hygiene of nutrition | 3,0 | exam |
| OB 4 | Hygiene and sanitary at enterprises that produce foods | 3,0 | exam |
| OB 5 | Management at enterprises of the branch-industry and fundamentals of business undertakings | 3,0 | exam |
| OB 6 | Fundamentals of construction in industry | 3,0 | exam |
| OB 7 | Physicochemical and technical base of processes of refrigeration | 3,0 | exam |
| OB 8 | Technological calculations and accounting in the of fish and seafood | 3,0 | exam |
| OB 9 | Industrial ecology of reprocessing enterprises | 3,0 | exam |
| OB 10 | Control of quality and safety of products of fish processing industry | 3,0 | exam |
| OB 11 | Physicochemical and biochemical works by reprocessing of fish and seafood | 4,0 | exam |
| OB 12 | Technology fish and seafood | 13,0 | exam, CP |
| OB 13 | Projecting of enterprises of fish-processing industry | 3,0 | exam, CP |
| OB 14 | Microbiology of fish and seafood | 3,0 | exam |
| **Total** | **54** |

#### Optional components by Student’s Choice

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### 3. OTHER TYPES OF TRAINING

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<tr>
<td>CC 3.2</td>
<td>Practical training</td>
</tr>
<tr>
<td>CC 3.3</td>
<td>Preparation of bachelor’ diploma (project)</td>
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</table>

**THE TOTAL AMOUNT OF EPP**

240
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components


General and inorganic chemistry. Structure of matter, types of chemical bonds, general regularities of passing of chemical processes, electrolytic dissociation and hydrolysis, oxidation 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, amino acids, 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, electriclighting, supply of energy to enterprises that produce foods, saving of electric energy.

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.

**Compulsory components by the decision of the Academic Council of the University**

Annotations of components: History of Ukrainian Statehood, Ethnocultural, Philosophy, Ukrainian language for professional purposes, Foreign language, Physical education, Legal culture of a personality see Section 2.1.


**Fundamentals of psychology.** The study of the mental properties of man as a whole education, a certain system of mental qualities, having the appropriate structure, internal connections, characterized by individuality and interconnected with the natural and social environment.

**2. SPECIAL (PROFESSIONAL) TRAINING CYCLE**

**Compulsory components**

**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.


**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 on 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.


**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.

**Technology of health food products.** General characterization and classification of foodstuffs, characterization of basic functional ingredients and principles of creation of functional foodstuffs.
Optional components

Optional components by specialty

**block 1 "Technology of meat and meat products"**

**Political science and fundamentals of sociology.** Formation of knowledge (basic stages of formation and progress of psychology of personality; methods used in its development, inter personal relations, processes occurred in groups, basic problems, concepts, social and psychological phenomenon.

**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 used in producing of finished products, calculation of their prospective output. Choose 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.

**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 in observance of clauses of normative documents of international category.

**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.

Design of meat processing enterprises. Students learn the methods of design, execution of technological calculations and graphic part during the design of meat processing enterprises.

Microbiology of meat and meat products. The role of microorganisms in various processes of processing and storage of meat raw materials; gaining practical skills for the identification and identification of micro-organisms that affect the quality and safety of meat and meat products; study of etiology of meat and meat products spoilage; study of systematics of preventive measures for prevention of food poisoning and infectious diseases originating from meat and meat products.

**Block 2 "Fish and Seafood Technology"**

Political science and fundamentals of sociology. Formation of knowledge (basic stages of formation and progress of psychology of personality; methods used in its development, inter personal relations, processes occurred in groups, basic problems, concepts, social and psychological phenomenon.

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, accounting and reporting in the fish processing industry. Calculations of basic raw materials, auxiliary materials and finished products, basic technological equipment with the use of electronic computers; application of knowledge in the conditions of carrying out and optimization of production processes; rational technological solutions; analysis of production situations.

Industrial ecology of fish processing enterprises. Ecology of food production and products, energy and ecology, monitoring of the natural environment, sources of pollution and classification of pollutants of the biosphere, environmental standards, protection of the air environment, water resources, biosphere.


Physico-chemical and biochemical bases of fish and seafood processing. Physico-chemical and biochemical processes in raw materials and products during salting, refrigeration and heat treatment, smoking, drying and new methods of technological treatment in order to achieve optimal modes of processing, formation of functional properties of raw materials and certain quality of finished products.

Fish and seafood technology. Theoretical and practical questions regarding processing technologies and technological characteristics of fish, invertebrates and other aquatic organisms; mastering the students’ knowledge of chemical composition, biological and energy values of fish and seafood, basic technologies of its processing, methods of justification, development of technological schemes, selection of ways of performing technological operations, calculations of parameters of technological modes.

Designing of fish processing enterprises. The program provides for the study of theoretical and practical issues related to specific typical processes of fish storage, preservation and processing technology; application of CAD elements in the design of fish processing enterprises; technological projects for the production of fish products; design and graphic parts of production design.

Microbiology of fish and seafood. Studying the morphology and physiology of the main groups of microorganisms that affect the quality of fish and fish products; causes of spoilage of fish and fishery products; study of the systematics of preventive measures to prevent the occurrence of food poisoning in humans when consuming poor-quality fishery products.
**Bachelor**

in the field of knowledge "Health care"

in specialty "PUBLIC HEALTH"

**Educational and professional program "Nutrition of healthy diet"**

<table>
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<th>Form of study:</th>
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<tr>
<td>– daily</td>
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<tr>
<td>– extramural</td>
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**Duration of study**

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<tbody>
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**The language of instruction**

| Ukrainian, English |

**Graduate Qualification**

| Bachelor of Public Health |

### Training concept

The Bachelor's Program in Public Health specializes in the training of a new generation of specialists for public administration, local self-government, economic entities of various forms of ownership, incl. non-governmental organizations in the field of public health, which would contribute to the improvement and implementation of public policy and public administration aimed at solving problems related to the demographic crisis, increasing morbidity, disability and mortality among the population, significant public stratification in access to medical services, low cost-effectiveness of health care activities, the dissatisfaction of a large number of citizens with medical care and protection of patients' rights, identify of interindustry and intersectoral collaboration with public health in Ukraine by the national principle of "health care in all policies of the state."

### Academic rights of Graduates

Graduates can apply for Master's Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.

### Employment of Graduates

A public health professional has broad employment prospects not only in health care but also in other professional fields, such as: • a medical assistant; specialist in hygiene; assistant manager at enterprises, organizations, and institutions; Social Worker; an epidemiology consultant; specialist in sanitary education and labor adaptation; instructor in physical training and rehabilitation; assistant rehabilitation therapist assistant; specialist in inclusive education; • tutor for working with children with special needs; valeology specialist; • disinfectant; health insurance specialist; expert on environmental and technogenic issues; chemical and radiation protection inspector; health teacher.
### Bachelor's Program and Curriculum in specialty "PUBLIC HEALTH"

#### Educational and professional program "Nutrition of healthy diet"

<table>
<thead>
<tr>
<th>Code</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits</th>
<th>The final control</th>
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<tbody>
<tr>
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#### 1. GENERAL TRAINING CYCLE

**Compulsory components of EPP**

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<td>Medical biochemistry</td>
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<td>CC 4</td>
<td>Food Chemistry</td>
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<td>CC 5</td>
<td>Human cytology and histology</td>
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<td>Pharmacology</td>
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<td>CC 7</td>
<td>Medical and biological physics</td>
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<td>Informatics and information technologies</td>
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<td>3,0</td>
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<tr>
<td>CC 13</td>
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**Compulsory components EPP by decision of the Academic Council of the University**

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<td>Philosophy</td>
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#### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components**

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<td>Human physiology</td>
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<td>CC25</td>
<td>Biostatistics</td>
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<tr>
<td>CC26</td>
<td>Biosafety</td>
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<td>Human ecology</td>
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<tr>
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<td>Epidemiology: noninfectious disease</td>
<td>5,0</td>
<td>exam</td>
</tr>
<tr>
<td>CC35</td>
<td>Bioethics with the basics of medical law</td>
<td>4,0</td>
<td>exam</td>
</tr>
<tr>
<td>CC36</td>
<td>Internal medicine with evaluation of research results</td>
<td>6,0</td>
<td>exam</td>
</tr>
<tr>
<td>CC37</td>
<td>Clinical chemistry and laboratory diagnostics</td>
<td>6,0</td>
<td>exam</td>
</tr>
<tr>
<td>CC38</td>
<td>Psychosomatics</td>
<td>6,0</td>
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<tr>
<td></td>
<td><strong>Total</strong></td>
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</table>

**The total amount of compulsory components**

<table>
<thead>
<tr>
<th>Optional components EPP</th>
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</table>

**Optional components by specialty (block 1 "Nutrition of healthy eating")**

<table>
<thead>
<tr>
<th>Code</th>
<th>Components</th>
<th>Amount of credits</th>
<th>The final control</th>
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</thead>
<tbody>
<tr>
<td>OC1.1</td>
<td>Technology of healthy food</td>
<td>5,0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.2</td>
<td>Fundamentals of nutrition</td>
<td>4,0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.3</td>
<td>Nutritional and dietary supplements</td>
<td>3,0</td>
<td>exam</td>
</tr>
</tbody>
</table>
## CURRICULA AND PROGRAMS OF BACHELOR DEGREE

### 1. GENERAL TRAINING CYCLE

#### Compulsory components

- **Latin and medical terminology.** The purpose of the discipline is to prepare the public health specialist for understanding anatomical, pharmaceutical and clinical terminology and writing prescriptions.
- **Analytical chemistry.** Gravimetric analysis, titrometric analysis (acid-base interaction, deposition and complexation methods) potentiometric method, conductometry, polarography and amperometry, emission spectral analysis, luminescence.
- **Medical and biological physics.** Formation of students’ system of knowledge about basic physical principles and approaches to the study of processes in the wild, physical and technical principles of functioning of medical and technical devices, the use of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<th>Type</th>
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</thead>
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<tr>
<td>OC1.4</td>
<td>Food hygiene</td>
<td>5.0</td>
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<tr>
<td>OC1.5</td>
<td>The physiology of digestion and metabolism</td>
<td>5.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.6</td>
<td>Biochemistry of digestion and metabolism</td>
<td>4.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.7</td>
<td>Features of nutrition in different age groups</td>
<td>4.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.8</td>
<td>Basics of medical nutrition</td>
<td>6.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.9</td>
<td>Sports nutrition</td>
<td>3.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.10</td>
<td>Baby and school meals</td>
<td>4.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.11</td>
<td>Information technology in the field of public health</td>
<td>5.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.12</td>
<td>Basics of the scientific research</td>
<td>3.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.13</td>
<td>Ethics and deontology</td>
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<td>exam</td>
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**Total** 54

#### Optional components at specialty (block 2 «Health promotion»)

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>OC1.1</td>
<td>Reproductive health</td>
<td>5.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.2</td>
<td>Fundamentals of Sanogenic Thinking</td>
<td>4.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.3</td>
<td>The basics of disaster medicine</td>
<td>3.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.4</td>
<td>Psychology of crisis states</td>
<td>5.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.5</td>
<td>The physiology of digestion and metabolism</td>
<td>5.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.6</td>
<td>Biochemistry of digestion and metabolism</td>
<td>4.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.7</td>
<td>Occupational health and injury prevention</td>
<td>4.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.8</td>
<td>Emergency medical care</td>
<td>6.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.9</td>
<td>Communication management</td>
<td>3.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.10</td>
<td>The basics of social advertising</td>
<td>4.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.11</td>
<td>Information technology in the field of public health</td>
<td>5.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.12</td>
<td>Основи наукових досліджень</td>
<td>3.0</td>
<td>exam</td>
</tr>
<tr>
<td>OC1.13</td>
<td>Environmental psychology</td>
<td>4.0</td>
<td>exam</td>
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</table>

**Total** 54

#### Optional components by Student’s Choice

1. Optional subject 1 3.0 exam
2. Optional subjects 1 3.0 exam

**Total amount of optional components** 60

#### 3. OTHER TYPES OF TRAINING

<table>
<thead>
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<th>Course Code</th>
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<td>CC40</td>
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<tr>
<td>CC41</td>
<td>Industry practice</td>
<td>3.0</td>
</tr>
<tr>
<td>CC42</td>
<td>Bachelors qualification thesis (diploma or project)</td>
<td>3.0</td>
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</table>

**THE TOTAL AMOUNT OF EPP (without military training)** 240

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**Annotations of Components in the curriculum**

1. **GENERAL TRAINING CYCLE**

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**Latin and medical terminology.** The purpose of the discipline is to prepare the public health specialist for understanding anatomical, pharmaceutical and clinical terminology and writing prescriptions.

**Analytical chemistry.** Gravimetric analysis, titrometric analysis (acid-base interaction, deposition and complexation methods) potentiometric method, conductometry, polarography and amperometry, emission spectral analysis, luminescence.

**Medical and biological physics.** Formation of students’ system of knowledge about basic physical principles and approaches to the study of processes in the wild, physical and technical principles of functioning of medical and technical devices, the use of...
mathematical methods in biomedical research, which form the basis of subject competencies in medical and biological physics and is an integral a component of the professional competence of the future health care professional, as well as the basis for the study of vocational-oriented natural and clinical disciplines.

**University education.** The basic directions of activity of the bachelor of food production, the general concepts and information about engineering and development of food production, information about scientific information, types and types of publications, the role of libraries in storage and search of information.

**Informatics and information technologies.** Theoretical and practical training of students in the use of the information-research complex in the field of health care, organization of access to modern information resources, provision of effective means and methods of creation, storage, processing and transfer of information.

**Political science with the basics of sociology.** Formation of knowledge (stages of formation and development of personality psychology; methods of personality psychology, interpersonal relationships, group processes, basic problems, concepts and socio-psychological phenomena, disclosure of the basic problems of the concept and social psychological phenomena.

**Compulsory components by decision of the Academic Council of the University**

Annotations of components: History of Ukrainian Statehood, Ethnocultural, Philosophy, Ukrainian language for professional purposes, Foreign language, Physical education, Legal culture of a personality see Section 2.1.

2. **SPECIAL (PROFESSIONAL) TRAINING CYCLE**

**Compulsory components**

**Human anatomy.** Disclosure on the basis of modern achievements of macro- and microscopic anatomy of the structure of the human body, its physiological systems, organs and tissues, establishing the relationship of the structure of organs with the performed functions, the formation of the concept of the interdependence and unity of the structure and function of human organs, their variability in the process of phylogeny and ontogeny.

**Medical biology and genetics.** Fundamentals of human activity, studying the laws of heredity, variability, individual development and morphophysiological adaptation of the person to environmental conditions in connection with its biosocial essence and the influence of molecular genetic, cellular, ontogenetic, population, environmental, human.
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 Agroengineering**

Educational-professional Program “**Agroengineering**”

Guarantor of the program – Associate Professor Mykhaylovich Yaroslav M.
Tel.: (044) 527-85-34 E-mail: yaroslav_m@ukr.net

Graduating departments:

Agricultural machinery and systems engineering them Acad. P.M. Vasylenka
Tel.: (044) 527-85-37 E-mail: _sgms@ukr.net
Head of Department – PhD, Gumenyuk Yuriy O.

Mechanization of livestock
Tel.: (044) 527-85-35 E-mail: hmelvas@ukr.net
Head of Department – PhD, Khmelovskiy Vasyl S.

Technical service and engineering management them M.P. Momotenka
Tel.: (044) 527-88-53 E-mail: vdv-tsim@ukr.net
Head of Department - Doctor of Technical Sciences, 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 V.

Tractors and cars and biological energy systems
Tel.: (044) 527-88-95 E-mail: vvchuba@ukr.net
Head of Department – PhD. Chuba Vyacheslav V.

**275.03 Transport Technologies (on Motor Transport)**

Educational-professional Program “**Transport Technologies (on Motor Transport)**”

Guarantor of the program – PhD. Domin Oleksandr A.
Tel.: (044) 527-86-32 E-mail: demin31@gmail.com

Graduating departments:

Transport technology and tools in agriculture
Tel.: (044) 527-86-32 E-mail: p.ovchar22@ukr.net
Head of Department – PhD, Ovchar Petro A.
Tractors and cars and biological energy systems
Tel. :(044) 527-88-95 E-mail: vvchuba@ukr.net
Head of Department - PhD. Chuba Vyacheslav V.

Technical service and engineering management them M.P. Momotenka
Tel. :(044) 527-88-53 E-mail: vdv-tsim@ukr.net
Head of Department - Doctor of Technical Sciences, prof. Voytyuk Valery D.
Bachelor
Field of Knowledge "Agricultural science and food"
in Specialty “AGROENGINEERING”
Educational-professional program «Agroengineering»

<table>
<thead>
<tr>
<th>Form of Training:</th>
<th>Licensed number of persons:</th>
</tr>
</thead>
<tbody>
<tr>
<td>– Full-time</td>
<td>200</td>
</tr>
<tr>
<td>– Part-time</td>
<td>200</td>
</tr>
<tr>
<td>Duration of Training</td>
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<tr>
<td>Credits ECTS</td>
<td>240</td>
</tr>
<tr>
<td>Language of Teaching</td>
<td>Ukrainian, English</td>
</tr>
<tr>
<td>Qualification</td>
<td>Bachelor of Agroengineering</td>
</tr>
</tbody>
</table>

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: KUHN Ukraine; John Deere Ukraine; Amaco Ukraine; Technician enerzhi; Astra; Zeppelin Ukraine; Lemken Ukraine; Vaderstadt Ukraine; Tan; HARDI; NSC "Institute of Mechanization and Electrification of Agriculture"; UkrNDIPVT them. Leonid Pogorelii.

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.
7. Development Process repairing agricultural machinery (brands) and justification (development) set of means of implementation.
8. Rationale kit machinery and equipment (vivtefermy, 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 (Educational-professional or Educational-scientific) 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 «Agroengineering»**

**Educational-professional program «Agroengineering»**

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

#### 1. GENERAL TRAINING CYCLE

**Compulsory components EPP**

| CC 1   | Physics                                    | 5.0 | exam |
| CC 2   | Descriptive geometry and computer graphics | 5.0 | exam |
| CC 3   | Higher Mathematics                          | 5.0 | exam |
| CC 4   | Higher and Applied Mathematics              | 3.0 | exam |
| CC 5   | Chemistry                                   | 5.0 | exam |
| **Total** |                                            | **23** |      |

**Compulsory components EPP by decision of the Academic Council of the University**

| CCU 1  | Ukraine history                            | 3.0 | exam |
| CCU 2  | Ethnocultural                              | 3.0 | exam |
| CCU 3  | Ukrainian language for professional purposes | 3.0 | exam |
| CCU 4  | Foreign Language                           | 7.0 | exam |
| CCU 5  | Physical Training                          | 5.0 | test |
| CCU 6  | Philosophy                                 | 4.0 | exam |
| CCU 7  | Social sciences                            | 4.0 | exam |
| CCU 8  | Safety and life                            | 4.0 | exam |
| CCU 9  | Legal culture of the person                | 3.0 | exam |
| **Total** |                                            | **36** |      |

#### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components EPP**

| CC 6   | Materialscience and TCM                   | 8.0 | exam |
| CC 7   | Theoretical Mechanics                      | 4.0 | exam |
| CC 8   | Theory of mechanisms and machines          | 6.0 | exam |
| CC 9   | Mechanics of materials and structure       | 5.0 | exam |
| CC 10  | Tractors and cars                          | 15.0 | exam |
| CC 11  | Agriculture machines                       | 16.0 | exam |
| CC 12  | Fuel and lubricants and other operating supplies | 4.0 | exam |
| CC 13  | Standartization and teacical measurements | 3.0 | exam |
| CC 14  | Parts of machines                          | 4.0 | exam |
| CC 15  | Lifting machines                           | 3.0 | exam |
| CC 16  | Machines and equipment for livestock       | 4.0 | exam |
| CC 17  | Machines in stockbreeding                  | 7.0 | exam |
| CC 18  | Operation of machines and equipment        | 6.0 | exam |
| CC 19  | Techical servis of machines                | 8.0 | exam |
| CC 20  | Reliability of equipment                   | 4.0 | exam |
| CC 21  | Machines and equipment for processing of agricultural products | 4.0 | exam |
| CC 22  | Basics of production management            | 3.0 | exam |
| CC 23  | Repair of machines                         | 4.0 | exam |
| **Total** |                                            | **108** |      |

**The total amount of Compulsory components**

**167**

**Optional components EPP**

**Optional components by specialty**

| OB 2.1 | Technology of growing, processing and storage agriculture products | 7.0 | exam |
| OB 2.2 | Computers and Computer Technology               | 3.0 | exam |
| OB 2.3 | The " machine -field - biological matrix "       | 3.0 | exam |
### CURRICULA AND PROGRAMS OF BACHELOR DEGREE

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Description</th>
<th>Credits</th>
<th>Type</th>
</tr>
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<tbody>
<tr>
<td>OB 2.4</td>
<td>Heating Engineering</td>
<td>4.0</td>
<td>exam</td>
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<tr>
<td>OB 2.5</td>
<td>Hydraulics</td>
<td>3.0</td>
<td>exam</td>
</tr>
<tr>
<td>OB 2.6</td>
<td>Basics of car and equipment management</td>
<td>4.0</td>
<td>exam</td>
</tr>
<tr>
<td>OB 2.7</td>
<td>Theoretical foundations of electrical engineering</td>
<td>4.0</td>
<td>exam</td>
</tr>
<tr>
<td>OB 2.8</td>
<td>Mechanical and technological properties agriculture materials</td>
<td>3.0</td>
<td>exam</td>
</tr>
<tr>
<td>OB 2.9</td>
<td>History and philosophy agriculture technics</td>
<td>3.0</td>
<td>exam</td>
</tr>
<tr>
<td>OB 2.10</td>
<td>Standardization and certification machinery and equipment</td>
<td>4.0</td>
<td>exam</td>
</tr>
<tr>
<td>OB 2.11</td>
<td>Hydro and Pneumodrive of new machines</td>
<td>5.0</td>
<td>exam</td>
</tr>
<tr>
<td>OB 2.12</td>
<td>Economic discipline</td>
<td>7.0</td>
<td>exam</td>
</tr>
<tr>
<td>OB 2.13</td>
<td>Machinery and equipment for biotechnology</td>
<td>4.0</td>
<td>exam</td>
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<tr>
<td><strong>Total</strong></td>
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#### Optional components by Student’s Choice

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
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<td>OS 2</td>
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<td><strong>Total</strong></td>
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The total amount of Optional components: **60**

### 3. OTHER TYPES OF TRAINING

<table>
<thead>
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<tr>
<td>CC 24</td>
<td>Cultural education training</td>
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<tr>
<td>CC 25</td>
<td>Preparation to diplom project</td>
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<td>CC 26</td>
<td>State certification</td>
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<tr>
<td><strong>THE TOTAL AMOUNT OF EPP</strong></td>
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<td><strong>240</strong></td>
</tr>
</tbody>
</table>

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### Annotations of Components in the curriculum

#### 1. GENERAL TRAINING CYCLE

**Compulsory components**

**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 chance of factors affecting any processes, principles of mathematical statistics used in the planning, organization and management of production and technological processes.
Chemistry. Submit student basic theoretical issues of physical chemistry and basic concepts of Macromolecular Chemistry.

Compulsory components by decision of the Academic Council of the University


2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

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 about the basic laws of nature, on the basis of which they create the computational schemes required in engineering, but also as a means of educating future engineers with the skills of scientific generalizations.

Theory of mechanisms 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.

Fuel and 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.
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.

Parts of machines. 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.

Lifting machines. 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 ahrozootehnichnyh, sanitary-veterinary and technical and economic requirements and work conditions.

Machines in stockbreeding. 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.

Operation of machines and equipment. 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 of equipment. Mastering the future mechanical engineer basics of technological processes of repair of machines and assemblies, get practical skills perform common maintenance operations.

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.

Basics of production management. 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.

Repair of machines Mastering the future mechanical engineer basics of mastering the basics of organizing repair facilities and bases of calculation and design of repair facilities.
Optional components

Optional components by specialty

Technology of growing, processing and storage agriculture 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 environment. As a result of the discipline the student acquires knowledge of the elements and indicators that define the system "machine - biological matrix" lines 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.

Heating Engineering. 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) that make up the theoretical foundations of heat engineering.

Hydraulics Forma of skills that allow the material to make the right choice considering the mechanical movement of fluid in various natural and man-made environment

Basics of car and equipment management. 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.

Economic discipline. 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

Field of Knowledge "Transport"

in Specialty «TRANSPORT TECHNOLOGIES (ON MOTOR TRANSPORT)»

Educational-professional program «Transport Technologies (on Motor Transport)»

<table>
<thead>
<tr>
<th>Form of Training:</th>
<th>Licensed number of persons:</th>
</tr>
</thead>
<tbody>
<tr>
<td>– Full-time</td>
<td>100</td>
</tr>
<tr>
<td>– Part-time</td>
<td>100</td>
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<tr>
<td>Duration of Training</td>
<td>4 years</td>
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<tr>
<td>Credits ECTS</td>
<td>240</td>
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<td>Language of Teaching</td>
<td>Ukrainian, English</td>
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<tr>
<td>Qualification</td>
<td>Bachelor of transport technologies</td>
</tr>
</tbody>
</table>

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).

Academic rights of Graduates: graduates can apply for Master’s Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.

Employment of Graduates

Received 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**

**Educational-professional program «Transport Technologies (on Motor Transport)»**

<table>
<thead>
<tr>
<th>Code</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<tbody>
<tr>
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### 1. GENERAL TRAINING CYCLE

**Compulsory components EPP**

<table>
<thead>
<tr>
<th>Code</th>
<th>Components</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC 1</td>
<td>Physics</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 2</td>
<td>Higher Mathematics</td>
<td>8</td>
<td>exam</td>
</tr>
<tr>
<td>CC 3</td>
<td>Fundamentals of systems theory and control</td>
<td>8</td>
<td>exam</td>
</tr>
<tr>
<td>CC 4</td>
<td>Chemistry</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 5</td>
<td>Probability Theory and Mathematical Statistics</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 6</td>
<td>Vehicles</td>
<td>4</td>
<td>exam</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
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</tbody>
</table>

**Compulsory components EPP by decision of the Academic Council of the University**

<table>
<thead>
<tr>
<th>Code</th>
<th>Components</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<tbody>
<tr>
<td>CCU 1</td>
<td>History of Ukrainian Statehood</td>
<td>4</td>
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<tr>
<td>CCU 2</td>
<td>Ethnocultural</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CCU 3</td>
<td>Ukrainian for professional purposes</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CCU 4</td>
<td>Foreign language (English, German, French, Spanish)</td>
<td>8</td>
<td>exam</td>
</tr>
<tr>
<td>CCU 5</td>
<td>Physical Education</td>
<td>4</td>
<td>test</td>
</tr>
<tr>
<td>CCU 6</td>
<td>Fundamentals of Legal Culture and Customs Law</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CCU 7</td>
<td>Work and life safety</td>
<td>7</td>
<td>exam</td>
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<tr>
<td><strong>Total</strong></td>
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### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components EPP**

<table>
<thead>
<tr>
<th>Code</th>
<th>Components</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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</thead>
<tbody>
<tr>
<td>CC 7</td>
<td>Basic theory of transport processes and systems</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>CC 8</td>
<td>Basics of European Standards transport</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 9</td>
<td>General course of transport</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 10</td>
<td>Organization of traffic</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 11</td>
<td>Operational properties of roads and buildings</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 12</td>
<td>Information Systems and Technology</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>CC 13</td>
<td>Freight transport</td>
<td>6</td>
<td>exam</td>
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<tr>
<td>CC 14</td>
<td>Technologically transport processes in agriculture production</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 15</td>
<td>Research of operations in transport systems</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>CC 16</td>
<td>Interaction of transport</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>CC 17</td>
<td>Technical means of traffic</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 18</td>
<td>Fundamentals of economy of transport (tariffs and tariff system)</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 19</td>
<td>Logistics</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>CC 20</td>
<td>Transport planning of territories</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 21</td>
<td>Vehicle safety</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 22</td>
<td>Organization of international road</td>
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<tr>
<td><strong>Total</strong></td>
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**The total amount of Compulsory components** | 146

**Optional components EPP**

### Optional components by specialty

<table>
<thead>
<tr>
<th>Code</th>
<th>Components</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<tbody>
<tr>
<td>OB 1.1</td>
<td>Engineering and Computer Graphics</td>
<td>3</td>
<td>exam</td>
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<tr>
<td>OB 1.2</td>
<td>System “machine - biological matrix”</td>
<td>3</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.3</td>
<td>Technical mechanics</td>
<td>3</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.4</td>
<td>Hygiene and features of animal transportation and livestock products</td>
<td>3</td>
<td>test</td>
</tr>
<tr>
<td>OB 1.5</td>
<td>Knowledge of cargo</td>
<td>3</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.6</td>
<td>Social sciences</td>
<td>3</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.7</td>
<td>Hoisting machinery</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.8</td>
<td>Performance Features vehicles</td>
<td>3</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.9</td>
<td>Fundamentals of forensics and road accident expertise</td>
<td>3</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.10</td>
<td>Traffic rules</td>
<td>3</td>
<td>exam</td>
</tr>
</tbody>
</table>
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

**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.

**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.
Fundamentals of systems theory and control. Forming students' knowledge of general purposeful methodology, systems theory and systems analysis techniques used in managing organizations and decision-making related to administrative, financial, and manufacturing problems, purposeful systems theory, modeling, and research focused on transportation technology.

Compulsory components by decision of the Academic Council of the University


2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

Operations research in transport systems. Formation of theoretical knowledge and practical skills formalize control problems in transportation systems using specialized optimization methods.

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.

General course of transport. Students learn the concepts of "Single transport system", "Single transport network", and acquiring knowledge about the importance of all modes of transport for timely and qualitative satisfaction of the needs of the economy and population in transportation, improving the economic efficiency of the transport system.

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.

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.

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.

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.
**Freight transport.** Forming students' academic and professional expertise in organizing, planning and managing various kinds of cargo transportation. Subject disciplines is a process of cargo units, transportation of goods from shipment to places of consumption and processes to ensure their implementation.

**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.

**Basics of European standards for road transport.** Study of material on the safety of commercial road transport in Ukraine, compliance of state legislation with the requirements of the European Union and best international experience.

**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.

**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.

**Vehicle safety.** 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.

**Optional components**

**Optional components by specialty**

**Sociology.** Social essence. Formation of human behavior in the process of work activity and place in the system of motivation and social control. The role of the workforce and small group in achieving the goal of production.
Philosophy. The course introduces the system of knowledge from such sections of philosophy as ontology, epistemology (theory of cognition), social philosophy, historical types of philosophy, which reveal the essence of the relation "man - world" in its most basic manifestations. The course is characterized by an outlook orientation, which allows to synthesize the acquired knowledge from professional and humanitarian disciplines into a holistic worldview - the theoretical basis of the university level of training of specialists.

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.

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.

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.

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.

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.

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.

**Hygiene and features of animal transportation and livestock products.** Formation of theoretical knowledge among students, on the types of transport for transportation of animals and their products, modern methods and methods of sanitary treatment of transport, packaging, mechanisms and equipment. The discipline combines technological knowledge with the student's sanitary-hygienic norms and processes that are necessary for the cultivation of animals, the production of livestock products, its transportation and sale. Helps to master the regulatory documents and hygiene requirements for the types of vehicles involved in the transportation of animals and livestock products that can be used in practical work.

**Fundamentals of forensics and road accident expertise.** Formation of skills that allow you to make the right choice of methods of simulating the investigation of a crime by a previously developed plot, more rationally determine the sequence of investigative actions, practices of disclosure, investigation and prevention of crimes, the mechanism of the event, the disclosure of internal links and contradictions in the studied phenomena and facts of transport technologies.

**Vehicle Maintenance.** To study the main factors that determine the organization of maintenance and repair of vehicles, economic and geographical characteristics of the city (district), the mode of operation of production units of the enterprise, the choice and adjustment of standards for the design of transport enterprise, the calculation of the production program of the TOR enterprise, the calculation of the production program of maintenance and repair by number of technical actions, calculation of production program of maintenance and repair in units of labor, calculation yrobnichovy program support work.

**Traffic rules.** The provisions of the investigation and investigation of crimes, the trial of cases, the process of proving, proving in a court case in a traffic accident the establishment of the facts of the past, the information about which get to the pre-investigator and the investigator in the form of information requiring special identification, recording, research and interpretation, expert examination, ensures the establishment of objective truth in the event of a traffic accident.
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
Location: building № 11, room 305

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

133 Sectoral engineering

Educational and professional program "Sectoral engineering"

The guarantor of the program is Doctor of Technical Sciences, Professor Vyacheslav Sergeevich Loveikin
Tel.: (044) 527-87-34, E-mail: machinebuild_centre@twin.nauu.kiev.ua

Graduating departments:

Constructing of Machines and equipment
Tel.: +38 (044) 527-87-34, E-mail: machinebuild_centre@twin.nauu.kiev.ua
Head of department – Doctor of Technical Sciences, professor Vyacheslav Loveykin

Reliability of Machinery
Tel.: (044) 527-87-71 E-mail: novitskiyAV@ukr.net
Head of department – Ph.D. (Technical Sciences), associate professor Andryi Novitskiy

Tractors and automobiles and bio energy system
Tel.: +38 (044) 527-88-95 E-mail: vvchuba@ukr.net
Head of department – Candidate of Technical Sciences, Associate Professor Chuba Vyacheslav Vladimirovich

Mechanics
Tel.: +38 (044) 527-83-25 E-mail: berezovyi@nubip.edu.ua
Head of department – Ph.D. (Technical Sciences), associate professor Mykola Berezovyi

192 Construction and civil engineering

Educational and professional program "Construction and Civil Engineering"

The guarantor of the program - candidate of technical sciences, associate professor Bakulin Evgenyi Anatolyevich
Tel.: (044) 527-87-34, E-mail: machinebuild_centre@twin.nauu.kiev.ua

Graduating departments:

Tel.: (044) 527-85-78 E-mail: bakulin959@ukr.net
Head of department – Candidate of Technical Sciences, associate professor Evgenyi Anatolyevich Bakulin
Mechanics
Tel.: +38 (044) 527-83-25 E-mail: berezovyi@nubip.edu.ua
Head of department – Ph.D. (Technical Sciences), associate professor Mykola Berezoyi
Bachelor
field of knowledge "Mechanical engineering"
in speciality «SECTORAL ENGINEERING»
Educational and professional program «Sectoral engineerin»

Form of Training: Licensed number of persons:
– full-time studying 170 students
– part-time studying 120 students
Duration of studying:
– full-time studying 4 years
– part-time studying 5 years
Credits ECTS 240
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 “Velykosnytinske Education and Research Farm named after O. Muzychenka”, Separated subdivision of NULES of Ukraine “Agronomic Research Station”, Separated subdivision of NULES of Ukraine “Education and Research Farm “Vorzel”, Separated subdivision of NULES of Ukraine “Boyarka Forestry Research Station”.

Proposed Topics for Bachelor theses

1. Improvement of the construction of the tire fitting stand;
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 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 (Educational-professional or Educational-scientific) 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 «Sectoral engineerin»

**Educational and professional program «Sectoral engineerin»**

<table>
<thead>
<tr>
<th>Ком</th>
<th>Components of the educational-professional program (academic disciplines, course projects (works), practices, qualification work)</th>
<th>Number of credits</th>
<th>Form of final control</th>
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<tbody>
<tr>
<td></td>
<td><strong>1. GENERAL TRAINING CYCLE</strong></td>
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<tr>
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<td>ОК 15</td>
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<td>exam, test, KP</td>
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<td>Machines and equipment for crop production</td>
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<td>exam, test</td>
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<td>ОК 17</td>
<td>Basis of machines constructions for animal production</td>
<td>6,0</td>
<td>exam, test</td>
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<tr>
<td>ОК 18</td>
<td>Machinery and equipment for bioenergetics</td>
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<td>ОК 19</td>
<td>Hydraulic driving devices of agricultural technics</td>
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<td>exam</td>
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<td>ОК 20</td>
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<td>ОК 22</td>
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<td>ОК 24</td>
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<tr>
<td>ОК 25</td>
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<td><strong>Optional components by specialty (block 1)</strong></td>
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<tr>
<td>ВБ 1.7</td>
<td>Patent science and copyright</td>
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<tr>
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<td>ВБ 1.9</td>
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<td>exam</td>
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<td>ВБ 1.10</td>
<td>Hydraulics</td>
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<td>exam</td>
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<tr>
<td>ВБ 1.11</td>
<td>Fundamentals of management, marketing and entrepreneurship</td>
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<td><strong>Optional components by specialty (block 2)</strong></td>
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<td>ВБ 2.1.1</td>
<td>Technology of animal products production</td>
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<td>ВБ 2.1.2</td>
<td>Technology of crop products production</td>
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### CURRICULA AND PROGRAMS OF BACHELOR DEGREE

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<tbody>
<tr>
<td>ВБ 2.1.3</td>
<td>Fuels, oils and other consumables</td>
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<tr>
<td>ВБ 2.1.4</td>
<td>Bioenergy systems in agricultural production</td>
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<td>test</td>
</tr>
<tr>
<td>ВБ 2.1.5</td>
<td>Theory of cutting, metal-working and instruments</td>
<td>5.0</td>
<td>test</td>
</tr>
<tr>
<td>ВБ 2.1.6</td>
<td>Design and ergonomics of agricultural machinery</td>
<td>8.0</td>
<td>test</td>
</tr>
<tr>
<td>ВБ 2.1.7</td>
<td>Modeling machines and aggregates</td>
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<td>test</td>
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<tr>
<td>ВБ 2.1.8</td>
<td>Tillage mechanics</td>
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<td>test</td>
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<td>ВБ 2.1.9</td>
<td>Reliability of agricultural technics</td>
<td>6.0</td>
<td>exam, test</td>
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<tr>
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<td>Fundamentals of machine construction</td>
<td>12.0</td>
<td>exam, test, KP</td>
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<td>Economic effectiveness of design solutions</td>
<td>3.0</td>
<td>test</td>
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<tr>
<td>ВБ 2.1.12</td>
<td>Fundamentals of equipment management</td>
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1.2. Specialization «Equipment of forest complex» (OLK)

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<td>ВБ 2.2.4</td>
<td>Fuels, oils and other consumables</td>
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<tr>
<td>ВБ 2.2.5</td>
<td>Woods cutting and transporting</td>
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<td>Designing of machines for forestry</td>
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<tr>
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<td>Standardization and certification of machines</td>
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<td>test</td>
</tr>
<tr>
<td>ВБ 2.2.9</td>
<td>Basics of technology management</td>
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<td>test</td>
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<td>exam, test, KP</td>
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<tr>
<td>ВБ 2.2.11</td>
<td>Economic efficiency of construction solutions</td>
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<td>test</td>
</tr>
<tr>
<td>ВБ 2.2.12</td>
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<tr>
<td>ВБ 2.2.13</td>
<td>Technical maintenance of machines and equipment of forest complex</td>
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1.3. Specialization "Robotics and robotic systems and complexes" (PCK)

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<th>Course</th>
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<tbody>
<tr>
<td>ВБ 2.3.1</td>
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<tr>
<td>ВБ 2.3.2</td>
<td>Mobile platforms and robot drives</td>
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<td>ВБ 2.3.3</td>
<td>Fuels, oils and other consumables</td>
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<td>Touch devices of robots</td>
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<td>ВБ 2.3.5</td>
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<td>ВБ 2.3.8</td>
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**Optional components by Student’s Choice**

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3. OTHER TYPES OF TRAINING

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<td>Driver training</td>
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<tr>
<td>ВБ 3.3</td>
<td>Preparation and defense of bachelor’s thesis</td>
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**TOTAL VOLUME OF THE EDUCATIONAL PROFESSIONAL PROGRAM**

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<td>ОЛК</td>
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<td>ПРСК</td>
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Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

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. Mastering the knowledge of the course of descriptive geometry provides further study of such disciplines as engineering and computer graphics, parts of mechanisms and machines, theoretical mechanics, etc., helps to improve the level of execution of drawings of course and diploma projects.)

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.)

Compulsory components by decision of the Academic Council of the University

Annotations of components: History of Ukrainian Statehood, Philosophy, Ukrainian language for professional purposes, Foreign language, Physical education see Section 2.1.
2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

**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. The study of the discipline will allow students to compile the simplest models of real objects and processes and conduct their qualitative analysis, choose research methods of complex models and apply them to practical problems, process experimental data using mathematical statistics.)

**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.** (This course, which studies the laws that determine the structure and properties of materials depending on their composition and processing conditions, is one of the main in the cycle of disciplines that determine the training of engineers. Progress in the field of mechanical engineering is closely related to the economy of materials, reducing the weight of machines and devices, improving the accuracy, reliability and efficiency of mechanisms and devices, with the creation and development of new, most economical materials with a variety of mechanical and physicochemical properties. In this regard, the study of the discipline will allow to get acquainted with modern highly effective methods of increasing strength properties, corrosion resistance, heat and cold resistant alloys, effective methods of surface treatment of products to significantly increase wear and corrosion resistance, development and use of new polymeric and composite materials. a given set 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. Complete mastery of engineering and computer graphics as a means of expression of technical thought is achieved as a result of mastering the whole set of technical disciplines of the relevant profile. The purpose of studying the discipline is to form in the student practical skills of construction at a high technical level of machine-building drawings with the use of educational and methodical and reference literature and computer technology.)

**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.)

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.)

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, perform preparatory work and test tractors and cars, non-motor and motor tests of tractor engines, at the modern scientific and methodological level to process experimental data and analyze the results, independently master tractors and cars of new designs of their mechanisms, components, units and systems and analyze them operational qualities to ensure rational use.)

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.)

Optional components of OPP

Optional components by specialty (block 1)

Patenting and copyright. The study of this discipline allows future specialists in the field of agricultural engineering to obtain the necessary knowledge of the system of intellectual property protection, the ability to apply in practice methods of legal protection of scientific and technical achievements and creative products.
General electrical engineering (This discipline is the theoretical basis on which the study of the following electrical engineering disciplines is based. The main task of the course is to study the basics of power supply, electric drive and electrical safety. As a result of studying the discipline the student learns the basic laws used in the analysis of electrical circuits, basic methods of analysis of electrical circuits, masters the general method of constructing circuit and mathematical models of electrical circuits, is able to analyze typical electrical circuits under typical external influences, has practical analytical, numerical and numerical skills. research of the basic processes taking place in electrotechnical circuits, knows rules and schemes of power supply, the electric drive and electric safety.)

Life Safety (The discipline covers legal and organizational issues of labor protection, hazardous and harmful factors of the working environment and methods of their reduction to standard values, the basics of fire safety and electrical safety in order to prevent accidents and occupational diseases at work. The purpose of the discipline is theoretical and practical training of specialists, who on the basis of the knowledge were able to develop and implement safe working conditions at the working places of agro-industrial complex employees, to design technical asobi safety. The objective of the discipline is to train future specialists capable of implementing labor protection solutions aimed at improving working conditions, reducing injuries and occupational diseases in the field of agro-industrial complex, and increasing efficiency.)

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.)

Fundamentals of management, marketing and entrepreneurship. Formation of the ability to solve professional issues; formation of practical skills in organizational design, financial resources management, etc.; to teach to make appropriate and reasonable managerial decisions, to analyze the generalizing economic performance of a construction organization, to defend their point of view adopted decisions, to lead a discussion. Formation of legislative base for creation and running own business.

Optional components by specialty (block 2)

Specialization "Machinery and equipment agricultural production"

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 and ergonomics 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 from 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. The main points of ergonomics are considered – 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.)

**Modeling of machines and units** (The bases of modeling of agricultural processes on the computer are considered, the basic concepts and definitions are established, methods of application of the automated systems at management of processes in manufacture are investigated.)

**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 agricultural production** (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 systems.)

**Reliability of agricultural machines** (This is a complex discipline that studies: timing and definition of reliability; engineering and physical bases of reliability of agricultural machines; mathematical theory of reliability; testing of machines for reliability; ways to ensure the reliability of agricultural machinery. The purpose of the discipline - to teach future professionals to ensure the reliability of agricultural machinery for a specified time, provided the optimal cost of material and labor resources for their design, production, operation, maintenance and repair.)

**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.)

**Economic effectiveness of design solutions** (Studying the economic aspects of making design decisions in order to maximize the benefits. Auditory and practical classes on discipline envisage students mastering the economic foundations of production in agro-industrial 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.)

**Specialization „Equipment of forest complex”**

**Forest crops** (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. The main objectives of the discipline are to form students' skills in construction and implementing in the production of measures for expanded reforestation, taking into account modern requirements for growing forest crops and solving other problems related to silvicultural production.)

**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.

**Woodworking technology** (The study of the discipline provides future professionals with theoretical and practical knowledge on techniques and technologies of woodworking in the new conditions of technologies for harvesting wood raw materials, its primary processing and supply to consumers.)

**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.)

**Basics of technology management** (The discipline deals with the issues of methods of studying the management bodies of self-propelled forest products, their preparation for work and work with forest machinery. Technical possibilities of tractors and aggregates provided by the design can be fully used only at excellent mastering and rational application of qualification methods of machine control in different conditions, for which it is necessary to know well the structure and interaction of mechanisms and systems of machines, rules of their service and operation.)

**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.)

**Economic efficiency of construction solutions.** (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).)
Specialization "Robotics and robotic systems and complexes"

Robot and UAV control systems
The course focuses on the application of control theory in robotics. Topics to be covered include: an overview of classical and modern methods of control system development, such as PID control, status feedback, optimal control, adaptive control and hybrid system control; mobile robot control; controlling of with robot manipulators.

Robot touch devices
Learn the structure and operation of digital and analogue sensors. Special attention is paid to the methods of signal processing.

Optimization of robot motion modes and UAV
This course introduces you to modern methods of mode optimization. Setting and isolating optimization tasks on dynamic robot models. The influence of terminal and integral optimization criteria on the robots’ movement is studied. On physical models of robots students implement the obtained optimal modes of motion.

Operating systems and robot programming languages and UAV
Discipline covers the problem of achieving the correct synchronization of robotic systems, which means ensuring that the system responds to real-time requirements. The course teaches how to plan real-time systems in theory using established mathematical methods and how to implement them in practice using common planning methods. Students will also learn how to program a C system using the FreeRTOS real-time core. It also examines future real-time systems, namely multi-core real-time systems.

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.)

Robot and UAV mechatronic systems
The course is devoted to the presentation of the general initial basics of robotics for junior students as an introduction to their future specialty. The course covers a wide range of issues: from the classification of industrial robots, control systems, kinematics, means of adaptation of robots to robotic technological complexes used in various industries.

Mobile platforms and robot drives
The task of studying the discipline is to present the basic concepts and algorithms necessary for the development of mobile robots operating autonomously in complex environments. The main emphasis is on mobile and kinematic mobile work, perception of the environment, localization and cartography on the basis of probability map and motion planning. Lectures and exercises in this course include several types of robots, such as wheeled and tracked i-tracks and drones.

Robot, manipulator and UAV dynamics
In this course, students will learn how to develop dynamic models of robotic manipulators, mobile robots and drones (quadroters). We will look at robot dynamics, path generation, motion planning and non-linear control, and develop real-time planning and control software modules for robotic systems. This course provides basic theoretical tools and allows you to develop control algorithms.

Reliability of robotic systems
It is a complex discipline studying: terms and definitions of reliability; engineering and physical foundations of reliability of robotic systems; mathematical theory of reliability; testing of machines for reliability; ways to ensure reliability of equipment. The purpose of the discipline is to teach future specialists to ensure the reliability of robotic systems within
the established time at the optimal cost of material and labor resources for their design, production, operation, maintenance and repair.

**Calculation and construction of robots and manipulators**
Modern computer-aided robot design systems are being studied. Modern methods of calculation and optimization of robot construction. Methods of additive manufacturing of robot constructions

**Economic efficiency of construction solutions**
The economic aspects of making construction decisions are studied in order to obtain maximum benefit. Auditorium and practical classes in the discipline provide for students to obtain the economic basics of production in the conditions of agro-industrial enterprises.

**Basics of technology management**
The discipline deals with the issues of methods of studying the controls of self-propelled agricultural machinery, robotic systems and complexes, their preparation for work and work with machinery. Technical capabilities of tractors and aggregates provided by the design can be fully used only at excellent assimilation and rational application of qualifying methods of machine control in various conditions, for which it is necessary to know well the structure and interaction of mechanisms and systems of machines, rules of their service and operation.
Bachelor
field of knowledge "Architecture and Construction"
in speciality «CONSTRUCTION AND CIVIL ENGINEERING»
Educational and professional program "Construction and Civil Engineering"

Forms of Learning, licensed volume:
– fixed-time 50
– correspondence 50
Terms of Learning 4 years
Tests ECTS 240 ECTS
Language of instruction Ukrainian
Qualification graduate Bachelor (Technical) in Building

Concept of training

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 (Educational-professional or Educational-scientific) 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" Educational and professional program "Construction and Civil Engineering"

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<tr>
<td></td>
<td>1. GENERAL TRAINING CYCLE</td>
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<tr>
<td></td>
<td>Compulsory components EPP</td>
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<td>OK 1</td>
<td>Physics</td>
<td>7.0</td>
<td>exam, test</td>
</tr>
<tr>
<td>OK 2</td>
<td>Descriptive geometry and engineering graphics</td>
<td>7.0</td>
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</tr>
<tr>
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<td>Higher Mathematics</td>
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<td>exam</td>
</tr>
<tr>
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<tr>
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<td>History of Ukrainian statehood</td>
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<tr>
<td>OKV 2</td>
<td>Ukrainian language (for professional purposes)</td>
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<td>OKV 3</td>
<td>Foreign language (for professional purposes)</td>
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<td>Labour protection</td>
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<tr>
<td>OKV 5</td>
<td>History and philosophy of construction</td>
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<td>OKV 6</td>
<td>Ethnocultural</td>
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<td>OK 5</td>
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<td>Theoretical Mechanics</td>
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<tr>
<td>OK 7</td>
<td>Mechanics of materials and structures</td>
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<tr>
<td>OK 8</td>
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<td>test</td>
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<td>OK 9</td>
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<td>OK 21</td>
<td>Organization of construction</td>
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<td>Optional components by specialty (block 1)</td>
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<td>ВБ 1.1</td>
<td>Fundamentals of management, marketing and entrepreneurship</td>
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<td>ВБ 1.2</td>
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<tr>
<td>ВБ 2.3</td>
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<td>ВБ 2.4</td>
<td>Construction materials science and welding in</td>
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1. GENERAL TRAINING CYCLE

Compulsory components

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.)

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. Mastering knowledge of descriptive geometry provides further study of such disciplines as engineering and computer graphics, machine parts and machines,
theoretical mechanics, etc., helps to increase the level of execution of drawings of course and diploma projects.)

**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.)

**Compulsory components by decision of the Academic Council of the University**

Annotations of components: Ethnocultural, Philosophy, Ukrainian language for professional purposes, Foreign language, Physical education see Section 2.1.

**History and philosophy of construction.** The discipline ensures the perception of world architectural and construction trends and their development with the historical formation of society.

**Introduction 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. SPECIAL (PROFESSIONAL) TRAINING CYCLE**

**Compulsory components**

**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.)

**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.)

**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.)
Construction technique. (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.)

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.

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.)

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.

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).
**Construction technology.** 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.

**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.

**Reliability construction equipment** (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.

**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.)

**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 stone 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.

**The 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.

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**Optional components**

**Optional components by specialty (block 1)**

**Fundamentals of management, marketing and entrepreneurship.** Formation of the ability to solve professional issues; formation of practical skills in organizational design, financial resources management, etc.; to teach to make appropriate and reasonable managerial decisions, to analyze the generalizing economic performance of a construction
organization, to defend their point of view adopted decisions, to lead a discussion. Formation of legislative base for creation and running own business.

Science of law. Forms students' legal aspects of the organization of construction production.

Optional components by specialty (block 2)

Engineering geodesy (general rate) 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 economy. 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.

Inspection and testing of buildings 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.

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.

Basics of computer-aided design 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 rs 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 repair of buildings and structures. Forms the basics of maintenance of buildings and structures, the frequency of interventions and means of maintaining buildings and structures in working order.

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.
Constructions 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.

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.

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.

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 timing of works, supply all kinds of resources to ensure effectiveness and quality of certain types of work or construction projects.

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.

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.

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.
2.10. EDUCATION AND RESEARCH INSTITUTE
OF ENERGETICS, AUTOMATICS AND ENERGY SAVING

Director – Doctor of Technical Sciences, Professor Victor Kaplun
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

Educational-professional Program «Power Engineering, Electrical Engineering
and Electrical Mechanics»

Graduating departments:

Department of Automatics and Robototechnical Systems named after acad. I.I.
Martynenko
Tel.: (044) 527-82-22, (044) 527-83-82 E-mail: avto.ea@gmail.com
Head of department – Doctor of Technical Sciences, Professor, Honored Worker of
Education Vitaliy Lysenko

Department of Electrical engineering, electromechanics and electrotechnology
Tel.: (044) 527-87-55; (044) 527-87-89 E-mail: elmash_nubip@ukr.net
Head of department – Doctor of Technical Sciences, Associate Professor Andrei
Zhyltsov

Department of Power Supply named after Prof. V.M. Synkov
Tel.: (044) 527-85-80 E-mail: epafort1@ukr.net
Head of department – Candidate of Technical Sciences, Associate Svitlana
Makarevych

Department of Heat and Power Engineering
Tel.: (044) 527-87-48 E-mail: gorobetsv@ukr.net
Head of department – Doctor of Technical Sciences, Associate Professor Valeryi
Gorobets

144 Heat power engineering

Educational-professional Program «Heat power engineering»

Graduating departments:

Department of Heat and Power Engineering
Tel.: (044) 527-87-48 E-mail: gorobetsv@ukr.net
Head of department – Doctor of Technical Sciences, Associate Professor Valeryi
Gorobets
151 Automation and Computer Integrated Technologies

Educational-professional Program «Automation and Computer Integrated Technologies»

Graduating department:

Department of Automation and Robotics Systems named after acad.I.I. Martynenka
Tel.: (044) 527-82-22, E-mail: avto.ea@gmail.com
Head of department, Doctor of technical sciences, professor Lysenko Vitaliy Pylypovych.
Bachelor field of knowledge "Electrical Engineering"
in specialty «POWER ENGINEERING, ELECTRICAL ENGINEERING AND ELECTRICAL MECHANICS»
Educational Program «Power Engineering, Electrical Engineering and Electrical Mechanics»

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: Bachelor of power engineering, electrical engineering and electrical mechanics

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 "Kyyivsilelektro", 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.
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.

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"
Educational-professional Program
«Power Engineering, Electrical Engineering and Electrical Mechanics»

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<td>1. GENERAL TRAINING CYCLE</td>
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<tr>
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<td>OK2. Physics</td>
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<td>OK3. Theoretical mechanics</td>
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<td>Compulsory components EPP by decision of the Academic Council of the University</td>
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<tr>
<td></td>
<td>OK1.1. History of Ukrainian statehood</td>
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<tr>
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<td>OK1.2. Ukrainian language for professional purposes</td>
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<td></td>
<td>OK 1.3. Physical Education</td>
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<td>OK1.4. Foreign Language</td>
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<td>OK1.6. Ethnocultural studies</td>
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<td>2. SPECIAL (PROFESSIONAL) TRAINING CYCLE</td>
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<td></td>
<td>OK4. Engineering and computer graphics</td>
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<td>OK5. Computer technology and programming</td>
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<td>OK6. Fundamentals of heat engineering</td>
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<td>OK7. Electronics and integrated circuits</td>
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<td>OK8. Electrical materials</td>
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<td>OK9. Electrotechnical Systems of Power Consumption</td>
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<td>OK10. Theoretical foundations of electrical engineering</td>
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<td>OK11. Electrical apparatus</td>
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<td>OK12. Electric machines</td>
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<td>OK13. Electrical networks</td>
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<td>OK14. Foundations of Automation</td>
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<td>OK15. Electrical Part of Stations and Substations</td>
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<td>OK16. Microprocessor technology</td>
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<td>OK17. Metrology and electrical measurements</td>
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<td>OK18. Fundamentals of Electric Drive.</td>
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<tr>
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<td>OK19. Fundamentals of Electricity Supply.</td>
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<tr>
<td></td>
<td>OK20. Fundamentals of relay protection and automation of power systems</td>
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<td>OK21. Economy and energy services organization</td>
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<td>OK22. Energy saving and alternative energy sources</td>
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<td>OK23. Mathematical Problems of Energetics</td>
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<td>OK 1.7. Safety of Labour and Activity.</td>
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<td>OK 1.8. Fundamentals of Scientific Research.</td>
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<td>OK 1.9. Basics of Business, Management and Marketing</td>
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<td>Optional components by specialty (block 1 &quot;Electricity&quot;)</td>
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<td>ВБ 1.1 Software of engineering and technical calculations</td>
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<td>ВБ 1.2 Hydraulics</td>
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<td>ВБ 1.3 Technology of production, storage and processing of agricultural products</td>
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<td>ВБ 1.4 Mounting of Energy Equipment and Control Systems</td>
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<td>ВБ 1.5 Fundamentals of digital control and programming of microcontrollers</td>
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<td>ВБ 1.9</td>
<td>Diagnostics of power equipment</td>
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<td>ВБ 1.10</td>
<td>Basics of Technical Operation of Energy Equipment and Control Facilities</td>
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<td>ВБ 1.11</td>
<td>Electric drive of industrial machinery and mechanisms</td>
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<td>Fundamentals of AIC energy objects design</td>
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<td>ВБ 1.13</td>
<td>Technical service of energy equipment</td>
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<td>ВБ 1.14</td>
<td>Thermal power plants and systems</td>
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**Optional components by specialty (block 2 "Electrical Engineering")**

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<td>ВБ 2.2</td>
<td>Hydraulics</td>
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<td>ВБ 2.3</td>
<td>Technology of production, storage and processing of agricultural products</td>
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<td>ВБ 2.4</td>
<td>Mounting of Energy Equipment and Control Systems</td>
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<tr>
<td>ВБ 2.5</td>
<td>Fundamentals of digital control and programming of microcontrollers</td>
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<td>ВБ2.6</td>
<td>Industrial electronics and transforming equipment</td>
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<td>exam</td>
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<tr>
<td>ВБ 2.7</td>
<td>Special electric machines</td>
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<td>ВБ 2.8</td>
<td>Project management</td>
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<td>exam</td>
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<tr>
<td>ВБ 2.9</td>
<td>Diagnosis, maintenance and repair of electrical equipment</td>
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<td>ВБ 2.10</td>
<td>Power equipment of power plants</td>
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<td>ВБ 2.11</td>
<td>Reliability and design of electrical systems</td>
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<td>ВБ 2.12</td>
<td>Transients in energy</td>
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<td>exam</td>
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<tr>
<td>ВБ 2.13</td>
<td>High voltage technology</td>
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<td>exam</td>
</tr>
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<td>ВБ 2.14</td>
<td>Expert decision-making systems in energy</td>
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**Optional components by Student's Choice**

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<tr>
<td>OS 2</td>
<td>Elective discipline 2</td>
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**Total** 60

**Other types of training**

- Educational Practice: 10 test
- Industrial Practice: 5 test
- Diploma Project: 9 defense of Bachelor work

**THE TOTAL AMOUNT OF EPP** 240

Annotations of Components in the curriculum

1. **GENERAL TRAINING CYCLE**

   **Compulsory components**


Compulsory components by decision of the Academic Council of the University


2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components


**Electrical Machines.** Electrical Machines DC. Transformers. Asynchronous machines. Synchronous machines.


**Metrology and Electrical Measuring.** Analog gauges. Digital gauges. Methods and tools for measuring electrical, magnetic and non-electrical quantities. Metrology and metrological activities.


**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.

**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.


Compulsory components by decision of the Academic Council of the University


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.


Optional components

Optional components by specialty


Special electric machines. 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.
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.


### Bachelor

**field of knowledge "Electrical Engineering"**  
in specialty «HEAT POWER ENGINEERING»  
**Educational-professional Program «Heat Power Engineering»**

<table>
<thead>
<tr>
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<td>– Part-time</td>
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<td>240 ECTS</td>
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### 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 "Kyyivsilelektro", PC "Kyyivelektromontazh", companies "Oblenergo".

### Proposed Topics for Bachelor theses

1. Modernization of the energy supply system of the greenhouse economy using energy-saving technologies.  
2. Development of an energy supply system for an energy-saving farmhouse.  
3. Improvement of the microclimate system in poultry houses using alternative energy sources.  
4. Power supply of the pig farm using a biogas plant.  
5. Reconstruction project of the district heating boiler with the use of solid fuel boilers.

### Academic rights of Graduates:  
graduates can apply for Master's Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.

### Employment of Graduates

The specialists are ready to work in the following branches of the economy: installation, repair and maintenance of heat and power equipment, generators, transformers, heat-distributing and control equipment; production and distribution of heat energy, production of heat and power equipment.
## Bachelor’s Program and Curriculum in Specialty «Heat Power Engineering»

### Educational-professional Program «Heat Power Engineering»

<table>
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### 1. GENERAL TRAINING CYCLE

**Compulsory components EPP**

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<tr>
<td>OK2.</td>
<td>Physics</td>
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<tr>
<td>OK3.</td>
<td>Theoretical mechanics.</td>
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<tr>
<td>OK4.</td>
<td>Chemistry</td>
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**Compulsory components by decision of the Academic Council of the University**

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<td>OK 1.2</td>
<td>Philosophy</td>
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<td>History of Ukraine</td>
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<td>OK 1.4</td>
<td>Ukrainian for Professional Purposes</td>
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<td>OK 1.6</td>
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### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components EPP**

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<td>OK6</td>
<td>Computer Technologies and Programming</td>
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<td>exam</td>
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<td>OK7</td>
<td>Technical thermodynamics</td>
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<tr>
<td>OK8</td>
<td>Foundations of Automation</td>
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<td>exam</td>
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<tr>
<td>OK9</td>
<td>Fundamentals of electrical engineering and electromechanics</td>
<td>3</td>
<td>exam</td>
</tr>
<tr>
<td>OK10</td>
<td>Control and measuring devices and apparatus</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>OK11</td>
<td>Fundamentals of Electricity Supply in Agroindustrial complex</td>
<td>4</td>
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<td>OK12</td>
<td>Hydro-gas dynamics</td>
<td>8</td>
<td>exam</td>
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<td>OK13</td>
<td>Thermal networks</td>
<td>3</td>
<td>exam</td>
</tr>
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<td>OK14</td>
<td>Fundamentals of Heat Mass Transfer processes</td>
<td>8</td>
<td>exam</td>
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<td>OK15</td>
<td>Heat power installations and systems</td>
<td>8</td>
<td>exam</td>
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<tr>
<td>OK16</td>
<td>Thermal power plants</td>
<td>4</td>
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<td>OK17</td>
<td>Software of Engineering Calculations</td>
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<tr>
<td>OK18</td>
<td>Water supply and drainage</td>
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<td>OK19</td>
<td>Fundamentals of Electric Drive</td>
<td>7</td>
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<td>OK20</td>
<td>Energy-saving technologies and use of energy resources</td>
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<td>exam</td>
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<td>OK21</td>
<td>Economy and Energy Services Organization.</td>
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<td>OK22</td>
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<tr>
<td>OK23</td>
<td>Electronics and Microprocessor Technics</td>
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**The total amount of Compulsory components** 121

**Compulsory components by decision of the Academic Council of the University**

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<th>Code</th>
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<td>Introduction to speciality</td>
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<tr>
<td>OK 1.6</td>
<td>Safety and life</td>
<td>3</td>
<td>exam</td>
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<tr>
<td>OK 1.7</td>
<td>Material science and technology of materials</td>
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**The total amount of Compulsory components by decision of the Academic Council of the University** 35

**Optional components EPP**

<table>
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<td>ВБ 1.1</td>
<td>Generation and transportation of electricity at power station</td>
<td>120</td>
<td>exam</td>
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<tr>
<td>ВБ 1.2</td>
<td>Renewable sources of electric energy</td>
<td>120</td>
<td>exam</td>
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<tr>
<td>ВБ 1.3</td>
<td>Electrical Technologies in Agriculture</td>
<td>90</td>
<td>exam</td>
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<tr>
<td>ВБ 1.4</td>
<td>Accumulation of thermal and electric energy</td>
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<tr>
<td>ВБ 1.5</td>
<td>Fundamentals of Scientific Research</td>
<td>90</td>
<td>exam</td>
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</table>
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components


Compulsory components by decision of the Academic Council of the University

Annotations of components: History of Ukrainian Statehood, Ethnocultural, Philosophy, Ukrainian language for professional purposes, Foreign language, Physical education see Section 2.1.

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components


**Fundamentals of electrical engineering and electromechanics.** The course "Electrical Engineering and Electromechanics" is a discipline for the fundamental training of engineers in electrical specialties. This science studies electrical and magnetic phenomena, the transformation of electrical energy into mechanical, the production of electrical energy and methods and means of its use. The purpose of the discipline is to familiarize students with the basics of modern electrical engineering, with the methods of calculating electrical circuits, with the principles of operation of electric machines of direct and alternating current, information micromachines. The tasks of the discipline are to: teach students to calculate electric and magnetic circuits in the steady and transient modes, to determine the characteristics of electric machines and to calculate effective and safe modes of their use. As a result of studying the discipline, the student must know the basics of the analysis of electric circuits of direct and alternating currents; the principles of the theory of quadrupole and its use; basic principles of the analysis of transients in electric circuits; the principles of electromechanical energy conversion; designs and principles of operation of electric machines (including micromachines). Student should be able to solve typical problems of analysis of electric circuits; to calculate transients in electric circuits; apply knowledge of the laws of electrical engineering and electromechanics for the efficient and safe operation of electromechanical transducers.

**Thermal power plants.** Structure of construction of thermal power plants. The main elements of thermal power plants and their interconnection. Thermodynamic and technological bases of thermal power plants. Study of the principles of functioning of steam and gas boilers, electric generators for the generation of electric energy. The main constructions of heat and power equipment and ways to improve the efficiency of the TPS are considered.


**Heat-technological processes in the processing of agricultural products.** The purpose of discipline is to form students' knowledge of the main processes of heat and mass transfer during the processing and storage of agricultural products, namely cooling processes, phase transformations and other processes. The principles of the devices for the processing of agricultural products are considered: dryers, shredders, refrigeration units, etc. The methods of thermal and hydraulic calculation of devices for processing and storage of agricultural products are considered. Acquaintance with modern methods and approaches in storage of agricultural products.

As a result of studying the discipline the student must know: the basics of the functioning of devices and industrial objects in the processing and storage of agricultural products.
products, methods of their calculation and bases of operation.


**Energy-saving technologies and use of energy resources.** The purpose of discipline is mastering the basic principles and methods of energy saving, introduction of modern energy-saving technologies, modern approaches and challenges in the development, design and operation of energy-saving installations and systems. The discipline allows students to study renewable energy sources, calculate them and get acquainted with the establishment of automatic control of modern energy supply systems based on renewable energy sources.


The general questions of estimation of energy efficiency of functioning of energy systems of agroindustrial complex, including those using renewable and secondary energy sources, are considered. The methods of determining the efficiency of power systems are described. The peculiarities and problems of financial and economic analysis of objects of agrarian and industrial complex are analyzed.

**Water supply and drainage.** The basic principles of water supply and drainage for settlements are considered. Principles of water treatment and transportation of drinking water to consumers are studied. The designs and functioning of the Rozhnovsky towers and the methods of treatment of drinking water in them are considered. The bases of sewage and water treatment of sewage are studied.

**Thermal networks.** The purpose of discipline is to study the basic principles of building thermal networks for the efficient transport of heat energy. The processes of transportation of heat carriers in thermal networks are considered. Thermal and hydraulic calculation of heating networks is carried out, types of insulation materials for pipelines and methods of their protection against destruction are considered. The ways of improvement of heat networks for minimizing heat losses during the transportation of thermal energy

**Fundamentals of Electricity Supply in Agroindustrial complex.** The discipline includes: general information on the production, transmission, distribution and consumption of electric energy; power supply tasks; reliability of power supply of enterprises and settlements; quality of electric energy in electric networks; electrical loads of networks; efficiency of electric networks; elements of electric networks; calculation of
electric networks; voltage regulation in electric networks; calculation of air lines for mechanical strength; transients in electrical networks; reserve and non-traditional sources of electric energy; means of protection of systems of power supply from emergency modes of work; relay protection and automation 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.

**Hydro-gas dynamics.** The discipline involves the preparation of students for the independent solution of theoretical and applied problems of hydrodynamics, knowledge of the laws of hydraulics, principles of operation and design of hydraulic systems, the operation of hydraulic devices and machines used in rural, municipal and industrial spheres. Basic principles of construction and functioning of pumping and ventilation equipment, their calculation and bases of operation. Design, calculation and management of hot and cold water supply networks, choice of water pump equipment, cost accounting and water supply regulation. Basic application packages for modeling complex water supply systems, their features and purpose.

**Fundamentals of Heat Mass Transfer processes.** The discipline studies the basic processes of heat transfer and mass transfer in technological processes and energy devices and apparatuses. Different mechanisms of heat transfer are considered, namely, thermal conductivity, convective heat transfer, radiation transport, heat exchange during boiling and condensation. The basic equations and methods of calculation of heat and mass transfer processes are presented. The main heat energy devices used in the agroindustrial complex are considered.

**Heat power installations and systems.** The purpose of discipline is to form students’ knowledge of the bases of functioning and principles of construction of thermal power plants and systems used in the agro-industrial complex. Tasks that are considered in the studied discipline: familiarization with the basic concepts, terminology and definitions used in thermal power plants; study of the principles of operation of thermal power plants, boiler-houses and cogeneration units, assimilation of methods for calculating thermal power plants, studying their constructions and bases of exploitation. Familiarization with modern methods and installations for the development of thermal and electric energy at agricultural facilities.

As a result of studying the discipline, the student must know: the basics of the operation of heat and power plants and systems, energy management systems, methods of their calculation and bases of operation.

**Compulsory components by decision of the Academic Council of the University**


**Introduction to speciality.** The purpose of discipline is to study the main directions of training of heat energy specialists, the features of the future profession, the content and objectives of practical activities in the energy sector. The main disciplines studied during the preparation of bachelors are given and information on the necessary types of training of heat energy specialists is provided. Particular attention is paid to the current trends in the development of heat and power engineering, which affect energy saving and alternative energy sources. The discipline substantiates the formation of the primary knowledge of the main heat power engineering and ideas about the future work,
the publication of the basic concept and terminology apparatus of heat power engineering and understanding of the ways of development of society.

Optional components EPP

Optional components by specialty (block 1)

Heat Engineering. The purpose of discipline is to form students knowledge of thermodynamic principles, methods and obtaining practical skills in the functioning and research of technological processes in heat and power systems and energy objects of agro-industrial production. When studying the discipline the student: acquaints with the state, the basic concepts and definitions of heat engineering, material flows and thermal energy; the main position of the operation of heat and power systems; analysis of typical (existing) technical solutions.

As a result of the study of the discipline, the student must know: the general principles of production, distribution and measurement of the cost of electric and thermal energy and material flows (gas, water, petroleum products, fuel resources); methods of formation and principles of saving of expenses of energy and material resources; the procedure for selecting technical means of automated control and accounting; construction and principles of the functioning of power systems and installations, management of distribution and consumption of energy and material resources;

The student should be able to: to identify the needs and normalize the energy and material resources, and select the technical means for the operation of power plants and systems and the consumption of energy and material resources.


Gas supply. Discipline gives an opportunity to gain knowledge: in the field of gas supply to the agro-industrial complex, gas supply systems; gasification of rural settlements with natural gas; gasification of rural settlements by liquefied gas; the composition of gaseous fuel, its main characteristics of the basics of combustion of gaseous fuels. In addition, issues concerning gas supply of biogas plants, technologies and equipment for its receipt are considered.

As a result of studying the discipline, energy engineers should be prepared to solve the problems of development and reconstruction of the material and technical base of agricultural production and social development of the village in the field of gas supply to the agro-industrial complex.

Diagnosis and maintenance of power equipment. Normative and legislative basis of the energy service. System of maintenance and repair of electrical equipment. Diagnosing and maintenance of synchronous generators. Determination of the technical state and operation of electric power transmission devices: air and cable lines of power transmission, transformers, switchgears. Switching devices with voltage up to 1000 V. Exploitation and diagnostics of the electric drive. Organization and conducting of acceptance testing of electrical equipment.

Renewable sources of electric energy. The discipline is an important subject discipline, the main purpose of which is the students' awareness of the role of power systems using renewable sources of electrical power generation; assimilation of the complex of questions concerning the substantiation of the type and methods of selecting
renewable power sources, their design features, electrical parameters; study of schemes and features of work of power plants. Lecture material includes: Scientific-organizational principles and directions for the implementation of power stations with renewable energy sources. Classification and basic technical and economic indicators. Investigation of the efficiency of the transformation of the intensity of the light flux into electricity by a photoelectric converter. Study of power supply circuits with photoelectric converters. Selection and substantiation of the parameters of the wind power and solar power station. Substantiation and calculation of hydroelectric power.

Accumulation of thermal and electric energy. The discipline in which accumulated knowledge of students obtained in the courses of physics, electrical engineering, surface physics, solid state physics, semiconductor electronics, micro and nanoelectronics and heat engineering. During the study of the discipline students learn about the basic physical phenomena, which are the basis of the work of different types of energy batteries, master the approaches to measure their working parameters, the skills of using modern software environments to analyze the results of measurements.


Modeling of heat transfer processes and hydrodynamics. In the discipline are considered the basic principles of mathematical modeling of heat and mass transfer processes occurring in heat and power equipment, agricultural and industrial objects. The basic equations describing the processes of heat and mass transfer and methods of their solution are considered. The bases of numerical calculation of integro-differential equations and their computer calculations are presented. The information on the main packages of applied programs for the calculation of thermal physical processes and the practical skills of working with such packages are given.

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.


Heat supply, heating and ventilation systems. The purpose of the discipline is to study heat supply, heating and ventilation systems for residential, public and industrial buildings. Systems of supply of heat to buildings, their distribution and methods of control of thermal conditions of premises, design of heating devices are studied. In addition, the basic principles of construction of ventilation and air conditioning systems for buildings and objects of various purposes are considered. The methods of calculation of heating and ventilation of buildings are given. Modern methods of energy saving for heating and ventilation of buildings are presented.

**Alternative sources of thermal energy.** Discipline involves studying the possibilities of using non-traditional and renewable sources of thermal energy in power supply systems of industrial enterprises; systems of transformation of solar radiation into thermal energy; possibilities of using biomass and solid household wastes for the production of electric and thermal energy. The discipline creates students’ knowledge in the field of renewable energy sources, the principles of constructing converters of various types of energy from renewable sources to heat energy, mastering the skills of calculating the main parameters of renewable energy converters, familiarizing with the modern world achievements in the development and implementation of renewable energy sources.

**Fundamentals of maintenance and service of power equipment.** Preparing students to work independently, making qualified decisions for the efficient operation of thermal power units and systems.

Formation of theoretical knowledge of the rules of operation of boiler plants, autonomous sources of thermal energy, thermal networks and gas economy; normative documents of technical operation of heat and power equipment, systems of heat and gas supply.

Providing students with practical skills to ensure the trouble-free operation of heat and power equipment and networks of heat and gas supply; taking appropriate measures in case of malfunctions in equipment operation, as well as in emergencies; solving issues of organization of repair works of boiler equipment and systems of heat and gas supply taking into account the requirements of ecology and rational nature management.

**Design of systems of electric and heat supply of objects of agrarian and industrial complex.** The main objective of the discipline is to develop knowledge and skills of specialists in the design of energy objects and systems, development of project documentation for network objects of electric and thermal power engineering and electric power stations, studying and calculation of parameters of schemes of electric and heat supply of consumers, studying of calculation methods for designing power objects, study of the state normative base necessary for execution and approval of the project documentation.
**Bachelor**  
field of knowledge "AUTOMATION AND INSTRUMENTATION"  
in specialty «AUTOMATION AND COMPUTER INTEGRATED TECHNOLOGIES»  
Educational-professional Program  
«Automation and Computer Integrated Technologies»

<table>
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<th>Form of Training:</th>
<th>Licensed number of persons:</th>
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<td>– Full-time</td>
<td>50</td>
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<td>– Part-time</td>
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<tr>
<td>Duration of Training</td>
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<tr>
<td>Credits</td>
<td>240 ECTS</td>
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<td>Language of Teaching</td>
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<tr>
<td>Qualification</td>
<td>Junior Engineer Automation and Computer Technologies</td>
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**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 (Educational-professional or Educational-scientific) 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"
Educational Program «Automation and Computer Integrated Technologies»

<table>
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<th>Amount of credits ECTS</th>
<th>The final control</th>
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<td>Compulsory components EPP</td>
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### Optional components by Student’s Choice

| OB 2.1. | Selective discipline 1 | 3.0 | exam |
| OB 2.2. | Selective discipline 2 | 3.0 | exam |
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### 3. OTHER TYPES OF TRAINING

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**Annotations of Components in the curriculum**

**1. GENERAL TRAINING CYCLE**

**Compulsory components**


**Compulsory components by decision of the Academic Council of the University**

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components


**Automation Systems Design.** Automation circuits, choice of methods for complex technical automation facility during designing and automation system analysis.


**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.


**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.

**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.

Optional components

**Optional components by specialty**


**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.


**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 Ievsiukov

Tel.: (044) 258-05-25 (24)  E-mail: ievsiukov_t@nubip.edu.ua
Location: Building № 6, Room 219

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

193 Geodesy and Land Management

Educational-professional Program «Geodesy and Land Management»

Guarantor of the Program – Doctor of geographical, Professor Kovalchuk Ivan Platonovych
Tel.: (044) 258-05-25  E-mail: kovalchukip@ukr.net

Graduating departments:

Geodesy and Cartography
Tel.: (044) 258-05-25  E-mail: kovalchukip@ukr.net
Head of Department – Doctor of geographical, Professor Kovalchuk Ivan Platonovych

Land Resources Administration Management
Tel.: (044) 258-05-25  E-mail: Uzr_k@ukr.net
Head of Department – Doctor of Economics, Professor Dorosh Oľha Stepanivna

Land-use Planning
Tel.: (044) 258-05-25  E-mail: martyn@nubip.edu.ua
Head of Department – Doctor of Economics, Professor Martyn Andriy Hennadiyovych

Land cadastre
Tel.: (044) 258-05-25  E-mail: v_zayats@ukr.net
Head of Department – Doctor of Economics, Professor Zayats Viktor Mefodiyovych

Geoinformatics and Aerospace Research of the Earth
Tel.: (044) 258-05-25  E-mail: kokhan_s@nubip.edu.ua
Head of Department – Doctor of technical, Professor Kohan Svitlana Stanislavivna
Bachelor  
Field of Knowledge "Architecture and building"  
in Specialty "GEODESY AND LAND MANAGEMENT"  
Educational-professional program «Geodesy and Land Management»

Form of Training:  Licensed number of persons:  
– Full-time 90 persons  
– Part-time 85 persons  
Duration of Training 4 years  
Credits ECTS 240  
Language of Teaching Ukrainian, English  
Qualification Bachelor in Geodesy and Land Management

The concept of training

The concept of training specialists in the field of geodesy and land management, consists in the formation of systematic knowledge on topography, geodesy, photogrammetry, cartography, land management, geoinformation technologies. In the process of learning, students learn how to create a variety of cartographic materials: cadastral and topographical plans and maps, creating and filling databases for various geographic information systems, and also studying land-use planning, 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 for graduates: graduates can apply for Master’s Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.

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»

Educational-professional program «Geodesy and Land Management»

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<td>3</td>
<td>exam</td>
</tr>
<tr>
<td>OB 2.2.15</td>
<td>Planning Residential Areas</td>
<td>3</td>
<td>exam, course project</td>
</tr>
<tr>
<td>OB 2.2.16</td>
<td>Agroforestry Amelioration</td>
<td>3</td>
<td>test</td>
</tr>
<tr>
<td>OB 2.2.17</td>
<td>Thematic Land Mapping</td>
<td>3</td>
<td>exam</td>
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**Optional components by specialty (block 2)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>OB 2.3.1</td>
<td>Soil Science and the Basics of Agrochemistry</td>
<td>4</td>
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<td>OB 2.3.2</td>
<td>Algorithms and Data Structures</td>
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<td>OB 2.3.3</td>
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<td>OB 2.3.4</td>
<td>Fundamentals of Ecology</td>
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<td>Fundamentals of Agriculture and Plant Science</td>
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<td>OB 2.3.7</td>
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<td>OB 2.3.11</td>
<td>Automated Land Cadastral System</td>
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<td>OB 2.3.12</td>
<td>Rational Use and Conservation of Land</td>
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<td>test</td>
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<tr>
<td>OB 2.3.13</td>
<td>Managing of IT infrastructure monitoring systems</td>
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<td>test</td>
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<td>OB 2.3.14</td>
<td>Town-Planning Cadastre</td>
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<td>exam</td>
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<td>exam, course project</td>
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<td>OB 2.3.16</td>
<td>Agroforestry Amelioration</td>
<td>3</td>
<td>test</td>
</tr>
<tr>
<td>OB 2.3.17</td>
<td>Spatial Organization of Crop Rotations</td>
<td>3</td>
<td>exam</td>
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**Optional components by Student’s Choice**

<table>
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<tr>
<td>OS 2</td>
<td>Optional subject 2</td>
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**The total amount of Optional components**

60

### 3. OTHER TYPES OF TRAINING

<table>
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<tr>
<th>Course Code</th>
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<tr>
<td>CC 22</td>
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<td>CC 26</td>
<td>Academic Practice</td>
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<td>test</td>
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</tbody>
</table>
Annotations of components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components of EPP

**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.

**Geoinformatics, 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.

**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.

**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.

**Economics theory.** 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.
CURRICULA AND PROGRAMS OF BACHELOR DEGREE

**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.

Compulsory components by decision of the Academic Council of the University


2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components EPP

**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 Drawing** 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.

**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.

**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.

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 Planning. 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.

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.
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.

Optional components EPP

Optional components by specialty (block 1)

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.

Planning 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 Plant 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.

Ingeneering Infrastructure of Territory. 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-Use Planning. 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 Maps and Plans 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 Land 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.

Town-Planning Cadastre. 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.

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.
Optional components by specialty (block 2)

**Soil Science and the Basics of Geobotany.** The science of soils, their formation, composition, properties, patterns of distribution, formation and development of the main property - fertility, the most rational use of soil. The discipline describes the basic patterns of the structure and dynamics of natural and anthropogenic phytocoenoses, their classification and transformation, and various types of lands, as well as the coenotic phytoremediation of Ukraine in conjunction with the influence of abiotic and anthropogenic factors.

**Fundamentals of engineering geodesy.** The course is focused on obtaining the necessary knowledge on special engineering and geodetic works; development of reference plans-high geodetic networks, networks of the substantiation of shooting, distribution networks; topographic, special, executive removable when searching, building, exploitation and reconstruction of various objects; breakdown works and geodetic control of the construction of plane engineering structures and linear objects; high-precision take-off in a variety of projects using modern electronic equipment.

**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 Plant 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.

**Ingeneering Infrastructure of Territory.** 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.

**Topographic and Geodetic Supply for Land-cadastral Works.** 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 Observations 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.

**Digital Maps and Plans** 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 Land 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.

**Regional Geoecology Monitoring.** The course covers the nature and scientific bases of regional geocological monitoring and problems solved during monitoring research. Levels and functional structure of geocological monitoring are characterized; the principles and implementation of algorithms geocological 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 geocological monitoring, observed parameters of the environment, especially the use of monitoring data in solving the environmental management and land management, land protection are characterized.

**Town-Planning Cadastre.** 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.

**Thematic Land Mapping.** 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.

Optional components by specialty (block 3)

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.

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.

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.

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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.

Geoinformation Technologies. 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.
Web Applications Development. 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.

Digital Maps and Plans 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 Land 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.

Managing of IT infrastructure 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.

Town-Planning Cadastre. 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.

Spatial Organization of Crop Rotations. 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.
2.12. LAW FACULTY

Dean – Candidate of Science in Law, Associate professor Olena Yara
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 specialties:

081 Law

Educational-professional Program "Law"

Graduating departments:

Theori 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
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Head of the Department – Doctor of Law, Professor Ladychenko Viktor Valerijovych
Bachelor
Field of Knowledge "Law"
in Specialty "Law"
Educational-professional program "Law"

Form of Training: Licensed number of persons:
  – Full-time 160
  – Part-time 90
Duration of Training 4 years
Credits ECTS 240
Language of Teaching Ukrainian
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 (Educational-professional or Educational-scientific) 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»
Educational-professional program «Law»

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
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<td><strong>1. GENERAL TRAINING CYCLE</strong></td>
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<td>CC 4</td>
<td>History of state and law of foreign countries</td>
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<td>CC 18</td>
<td>Practice of European Court on Human Rights</td>
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Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

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.

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 (Latin). 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 politological knowledge and interpretation of the formalized language of the science of logic in the sphere of politology; 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.

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.

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.

Compulsory components by decision of the Academic Council of the University


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. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

**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.

**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 branches 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.
CURRICULA AND PROGRAMS OF BACHELOR DEGREE

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 jural 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.

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.

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.

Optional components

Optional Block 1 by choice in specialty

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.

Basics of Business Design. 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.

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.

Juvenile law. Juvenile law studies the legal regulation of social relations in which children and youth participate, the legal provision of life, proper development, social adaptation of adolescents. Two categories of minors: those who have broken the law and those who find themselves in a difficult life situation. Creating special (individual) conditions for children during criminal proceedings; additional specialization of lawyers, as well as judicial institutions; providing sufficient conditions for children's adaptation to modern society; prevention of problems with the law in children and adolescents.

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.

Sports Law. The purpose of the discipline «Sports Law» is to provide students with special theoretical knowledge on the problems of formation of sports law, features of legal regulation of sports relations, study the content of basic legal categories of sports law, mastering practical skills to represent and protect the rights of sports.

Tourist law. The purpose of the discipline “Tourist Law” is to provide students with theoretical knowledge in the field of legal regulation of tourism, study the content of basic legal categories of tourism law, mastering practical skills in the application of legal instruments in tourism.

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.

Anti-corruption legislation. The purpose of the course "Anti-corruption legislation" is forming among the students a set of professional knowledge on the theoretical foundations of modern legal regulation of relations in the field of preventing and combating corruption; awareness of the essence of the main regulations in the field of anti-corruption activities; understanding of the system of anti-corruption bodies, their tasks, functions and delimitation of powers; knowledge of basic
Information Law. The purpose of studying the subject “Information Law” is to provide students with comprehensive knowledge of the theory and practice of information law. The following subject were studied: the current legislation of Ukraine, which regulates information on human rights actions and effectiveness in this area of information, should be explained and complied with; to determine the system of governing bodies in the field of information legal relations; highlight the features of legal regulation of certain institutions of information law, such as state secrets, information security, media, personal data, etc.; to defend their information rights and freedoms; identify and adequately respond to violations of existing national and international legal acts governing information relations; to conduct scientific and legal research on the problems of information law; adhere to academic integrity.

Transport Law. The discipline “Transport Law” is studied in the system of educational disciplines for educational and professional programs “Transport Technologies” and “Law”. The purpose of teaching the discipline is to teach students to find effective tools and methods for solving practical problems in the field of legal regulation of transport services, legal organization of transport and logistics activities, national and international transport.

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.

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.

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.

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.

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.

Constitutional process. Elective discipline is designed to acquaint students with constitutional procedural rights. In the process of studying this discipline students on the basis of knowledge of “Constitutional Law of Ukraine” will be able to systematize in more detail the normative, theoretical and practical material in the constitutional process, learn
to work with such new sources for the domestic legal system. issues relevant to the implementation of constitutional law. Also, students will develop skills of practical work with the Constitution of Ukraine (which has direct effect) and with the constitutional and constitutional-procedural legislation. In particular, students will be trained in drafting procedural documents (constitutional submissions and constitutional appeals to the Constitutional Court of Ukraine, individual and collective appeals to public authorities and local governments, applications, petitions and other documents in cases of citizenship, refugees, etc.).

**Optional Block 2**

**Human-centered approach in law.** Human-centered approach in law focuses on the general legal trends of human development, as well as determines the diversity of legal cultures, as evidenced by the pluralism of law and order, arising in specific historical conditions. The discipline examines the formation of human legal existence, features of the legal status of the individual in traditional societies, in the system of European law, in the international legal dimension, as well as legal problems of human existence in the context of globalization challenges.

**Legal sociology.** The course is aimed at deepening knowledge of socio-legal phenomena and processes, ways of organizing socio-legal relations, social conditionality and value of law, relationships and interaction of social and legal reality, as well as contribute to the acquisition of skills for analysis and forecasting socio-legal processes, conditions for the formation of an active social and legal position of legal entities, ensuring the social efficiency of legal activities.

**Legal writing and documentation.** The purpose of this educational discipline is achieving a comprehensive deep understanding of the concept by students the role and importance of legal documents and also their areas of application, formation of theoretical ideas about the document and documentary activities, about the rules, methods, ways to create and systematize legal documents, preparation for practical legal activity, formation of creative personality of future lawyers.

**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.

**Climate Law.** The purpose of the discipline "Climate Law" is to form a system of theoretical knowledge on the legal regulation of relations in the field of climate protection and use, as well as practical skills in analyzing, interpreting and correctly applying legislation on climate protection, general and special climate use, climate monitoring and inventory, protection of the ozone layer, as well as protection from the harmful effects of climate.

**Energy law.** Within the framework of the work program of the discipline "Energy Law" students learn new knowledge in the field of legal regulation of energy (energy law) under current legislation of Ukraine and EU law, which includes the legal basis of state policy in the field of energy, legal framework for public administration production and transportation of electricity, legal support for the functioning of the electricity market, legal regulation of energy use and energy saving. It is also envisaged to study the features of legal regulation of public relations in the field of natural resources for energy production, legal regulation of alternative energy sources, legal principles of "green" energy and environmental protection in the production and use of energy resources.
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 Office of Ukraine. 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.

Administrative and legal protection of computer programs. The discipline "Administrative and legal protection of computer programs" is studied in the system of academic disciplines in the educational and professional programs "Software of information systems" and "Law". The purpose of teaching the discipline is to teach students to find effective tools and methods for solving practical problems in the field of administrative and legal protection of intellectual property rights to computer programs.

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.

Business Law. The purpose of the course "Business Law" is to form a system of knowledge about the legal regulation and forms of entrepreneurial activity, the procedure of legalization of business activities. The issue of termination of activity and application of the bankruptcy procedure of business entities. Features of contractual relations in the field of entrepreneurship. Contracts of sale, rental, leasing, insurance, franchise, concessions etc. Legal regulation of financial activity of business entities. The responsibility for businesses to provide quality goods and services to consumers.

Legal status of Social Enterprises. The course "Legal status of Social Enterprises" is devoted to current theoretical and practical problems of activities of Social Enterprises.

Students will be introduced to the types of Social Enterprises and their place in the system of legal entities of Ukraine, will acquire knowledge about the legal status, establishment, management and liquidation of Social Enterprises, about rights and obligations of participants of such legal entities.

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.
Practical bases of mediation. The elective course is designed to acquaint students with the basics of such a separate institution as alternative dispute resolution. This knowledge will help the future lawyer to identify the conflict in a timely manner, understand its nature and mechanism, find different approaches to its settlement, which will help to increase efficiency in professional activities and to establish relationships in everyday life.

Fundamentals of legal practice. The elective course is designed to acquaint students with practical skills in identifying legal facts and their formalization in the form of procedural evidence, drafting legal documents, providing legal advice to clients by advising them and taking certain legally significant actions in their favor free of charge. Also, the acquisition of practical skills will allow students to determine the factual basis of a legal case, to carry out legal analysis of legislation and case law, to formulate a legal position in the case, to have skills in representation in courts, public authorities and local governments.

Optional Block 3

Conflict in law. The purpose of the course is to clarify the theoretical and legal nature of the conflict. Discipline allows to find out the content and features of social conflicts; determine the legal nature of legal conflicts, reveal their main properties and structure; to study different types of legal conflicts; characterizes ways to prevent and resolve legal conflicts. This contributes to the development of skills for timely detection of conflict situations in law and their adequate resolution.

Legal thinking. The course is aimed at forming and improving the culture of thinking of law students by developing skills for thinking in legal concepts and performing logical operations with them, analysis of legal terminology, evidential, consistent, critical legal thinking in practical situations, abstract thinking, logical construction of their judgments and correct formulation, proof and refutation of legal information.

Fundamentals of legal discourse. The course aims to deepen students' knowledge of legal communication, models of legal discourse (subjects, object, results, etc.), the dependence of legal discourse on objective and subjective conditions, as well as developing skills to combine verbal and nonverbal communications, achieving maximum compliance of abstract rules of discourse with their verbal embodiment, conducting a legal monologue and legal dialogue to obtain legal understanding or legal consensus.

State registration of land rights. The purpose of the discipline «State registration of land rights» is to form students special theoretical knowledge on the legal aspects of state registration of land rights, acquisition by students of practical skills on the application of land legislation in this part in order to solve legal problems that arise during the acquisition and implementation of land rights.

Biotechnology law. The purpose of the discipline is to form a system of knowledge on the legal regulation of public relations in the field of biotechnology, the use of which is extremely relevant for a wide range of industries, such as agriculture, medicine, energy, food industry and more. The discipline involves the study of legislation governing: the application of biotechnology in food production; use of biotechnology in health care; consideration of types of legal liability for offenses in the field of biotechnology, etc.

Environmental proceedings. The purpose of studying the discipline "Environmental proceedings " in curriculum educational degree "Bachelor" is the need to form knowledge of scientific approaches, legislative provisions, as well as the practice of their implementation in the field of judicial protection of environmental rights for further work, education of legal culture of future professionals.
**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.

**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.

**Administrative and legal protection of computer programs.** The discipline "Administrative and legal protection of computer programs" is studied in the system of academic disciplines in the educational and professional programs "Software of information systems" and "Law". The purpose of teaching the discipline is to teach students to find effective tools and methods for solving practical problems in the field of administrative and legal protection of intellectual property rights to computer programs.

**Medical Law.** The discipline (academic subject) "Medical Law" is important for obtaining and systematizing the theoretical knowledge of future professionals regarding to the specifics of the medical activities' legal regulation, ethical and legal issues in the field of health care. It also contributes to the students' practical skills development for future professional activities forming regarding to the provision of the legal assistance in medical law.

**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.

**Civil Procedure Documents.** The study of the discipline "Civil Procedure Documents" will form students' knowledge of the practical writing of various procedural documents in marital and family relations, inheritance, housing, copyright protection, honor, dignity and business reputation, establishing facts of legal significance, documents for representation in civil law relations and other documents for the protection of civil rights.

**Educational litigation: in-depth practical course.** The elective course is designed to acquaint students with legal practice. Students in the process of studying this discipline will study the facts and laws of the case, develop skills in the study of writing and oral presentation, increase their self-esteem and master the sense of the legal profession. In the process of study, students will conduct modeling of court proceedings, participate in court debates and national competitions in various lawsuits.

**Practical aspects of appeals to the European Court of Human Rights.** The elective course is designed to acquaint students with legal activities in the field of the European Convention for the Protection of Human Rights and Fundamental Freedoms and the protocols to the Convention based on the case law of the European Court of Human Rights. Students have the opportunity to master the practical significance of the basics of human rights theory; to study the forms and models of legal activity in the field of human rights; understand the mechanisms of application of the European Convention; master the main rules on the admissibility of applications to the ECtHR; to analyze the case law of the European Court of Human Rights in Ukraine; learn to analyze legal issues in the field of protection of human rights and fundamental freedoms in Ukraine, to determine and apply to them the relevant legal norms.
Legal regulation of the association between Ukraine and the European Union. The elective course is designed to acquaint students with the legal framework of the EU's external competence and the main types of association agreements between the EU and other countries. Within the framework of this discipline the following is studied in detail: the structure and content of the Association Agreement between Ukraine and the EU; legal principles of free trade; implementation of European standards of economic cooperation; cooperation in the field of justice, freedom and security; basic acts of legislation and instruments of policy development in Ukraine; cross-border cooperation between Ukraine and the EU; cooperation between Ukraine and the EU in the field of energy efficiency.
2.13. ECONOMIC FACULTY

Dean – Professor, Doctor of Economics Anatolii Dibrova
Tel.: (044) 527-85-40  E-mail: dibrova@nubip.edu.ua
Location: Building № 10, Room 301

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

051 Economics

Educational and professional program «Economics enterprises»

Guarantor of the program – Professor, Doctor of Economics Svitlana M. Rogach
Tel.: (044) 527-81-01  E-mail: dibrova@nubip.edu.ua

Graduating departments:

Enterprise economics named after prof. I.V.Romanenko, Tel.: (044) 527-81-01
E-mail: dibrova@nubip.edu.ua
Head of Department – Professor, Doctor of Economics Svitlana M. Rogach

Organization of business and exchange activities, Tel.: (044) 527-86-60
E-mail: 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
Head of Department – Professor, Doctor of Economics Oleksandr Yu. Yermakov

Global Economy, Tel.:(044) 527-86-48 E-mail: dibrova@nubip.edu.ua
Head of Department – Professor, Doctor of Economics Natalia M. Vdovenko

071 Accounting and Taxation

Educational and professional program "Accounting and Audit"

Guarantor of the program – Professor, Doctor of Economics
Inna D. Lazaryshyna
Tel.: (044) 527-82-36 E-mail: statistics_chair@nubip.edu.ua

Graduating departments:

Accounting and Taxation, Tel.:(044) 527-83-61
E-mail: book-keep_chair@nubip.edu.ua
Head of Department – Professor, Doctor of Economics, Ievheniiia V. Kaliuga

Statistics and economic analysis, Tel.: (044) 527-82-36
E-mail: statistics_chair@nubip.edu.ua
Head of Department – Professor, Doctor of Economics Inna D. Lazaryshyna
072 Finance, Banking and Insurance
Educational and professional program «Finance, Banking and Insurance»

Guarantor of the program – Associate Professor, Ph.D. in Economics, Yuliia V. Nehoda
Tel.: (044) 527 88 90 E-mail: kafedfin@ukr.net

Graduating departments:
Finance Tel.: (044) 527 88 90 E-mail: kafedfin@ukr.net
Head of Department – Professor, Doctor of Economics Nadiia M. Davidenko

Banking and insurance Tel.: (044) 527 88 90 E-mail: banking_chair@nubip.edu.ua
Head of Department – Professor, Doctor of Economics Lybov M. Khudoliy

076 Entrepreneurship, Trade and Exchange Activities
Educational program "Entrepreneurship, Trade and Exchange Activities"

Guarantor of the program – Associate Professor, Ph.D. in Economics Valentyna O. Yavorska
Tel.: (044) 527-86-60 E-mail: organizing_chair@nubip.edu.ua

Graduating department:
Organization of business and exchange activities, Tel.: (044) 527-86-60
E-mail: organizing_chair@nubip.edu.ua
Head of Department – Professor, Doctor of Economics Mykola M. Ilchuk
Bachelor
field of knowledge "Social and Behavioral Sciences"
in specialty "ECONOMICS"

Educational and professional program «Economics enterprises»

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
<table>
<thead>
<tr>
<th>Code</th>
<th>Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
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1. GENERAL TRAINING CYCLE

**Compulsory components EPP**

<table>
<thead>
<tr>
<th>Code</th>
<th>Components</th>
<th>Amount of credits ECTS</th>
<th>Final control</th>
</tr>
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<tbody>
<tr>
<td>CC 1</td>
<td>Political Economy</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 2</td>
<td>Economics</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 3</td>
<td>Mathematics for Economists</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 4</td>
<td>Economic-mathematical methods and models</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 5</td>
<td>Econometrics</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 6</td>
<td>Information systems and technologies in economy</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 7</td>
<td>Management</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 8</td>
<td>Marketing</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 9</td>
<td>Statistics</td>
<td>5</td>
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</tr>
<tr>
<td>CC 10</td>
<td>Science of law</td>
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**Total**

50

**Compulsory components EPP by decision of the Academic Council of the University**

<table>
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<th>Components</th>
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<th>Final control</th>
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<tbody>
<tr>
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<td>Philosophy</td>
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<tr>
<td>CCU 2</td>
<td>Foreign Language</td>
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<tr>
<td>CCU 3</td>
<td>Technology of the industry I, II</td>
<td>10</td>
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<tr>
<td>CCU 4</td>
<td>Labour and Life Safety</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CCU 5</td>
<td>Physical Training</td>
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<td>CCU 6</td>
<td>University education and social communication</td>
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**Total**

37

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components EPP**

<table>
<thead>
<tr>
<th>Code</th>
<th>Components</th>
<th>Amount of credits ECTS</th>
<th>Final control</th>
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<tbody>
<tr>
<td>CC 11</td>
<td>Evaluation and development of the enterprise</td>
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</tr>
<tr>
<td>CC 12</td>
<td>Planning, strategy and control of the enterprise</td>
<td>10</td>
<td>exam</td>
</tr>
<tr>
<td>CC 13</td>
<td>Organization of production</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 14</td>
<td>Economic analysis</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 15</td>
<td>Economics of Enterprise</td>
<td>10</td>
<td>exam</td>
</tr>
<tr>
<td>CC 16</td>
<td>Labor Economics and Labor Relations</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 17</td>
<td>Justification economic decisions and assessing risks</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 18</td>
<td>Cost management</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 19</td>
<td>Environmental Economics</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 20</td>
<td>Leadership and career management</td>
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<td>exam</td>
</tr>
<tr>
<td>CC 21</td>
<td>Distribution of productive forces</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 22</td>
<td>Finance</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 23</td>
<td>Accounting</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 24</td>
<td>International Economics</td>
<td>5</td>
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<tr>
<td>CC 25</td>
<td>Project Analysis</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 26</td>
<td>State regulation of Economy</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>CC 27</td>
<td>Educational practice</td>
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<tr>
<td>CC 28</td>
<td>Internship</td>
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<td>Graduate design</td>
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<td>CC 30</td>
<td>State attestation</td>
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**Total**

102

The total amount of Compulsory components 189

**Optional components EPP**

<table>
<thead>
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<th>Code</th>
<th>Components</th>
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<tr>
<td>OB 1.1</td>
<td>History of Ukrainian Statehood</td>
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<td>exam</td>
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<tr>
<td>OB 1.2</td>
<td>Ethno-cultural studies</td>
<td>5</td>
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<tr>
<td>OB 1.3</td>
<td>Political science</td>
<td>5</td>
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</tr>
<tr>
<td>OB 1.4</td>
<td>Sociology</td>
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### CURRICULA AND PROGRAMS OF BACHELOR DEGREE

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<th>Course Title</th>
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<tbody>
<tr>
<td>OB 1.5</td>
<td>Religious Science</td>
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<tr>
<td>OB 1.6</td>
<td>Logic</td>
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</tr>
<tr>
<td>OB 1.7</td>
<td>Psychology and Pedagogics</td>
<td>5</td>
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</tr>
<tr>
<td>OB 1.8</td>
<td>Ethics and aesthetics</td>
<td>5</td>
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<tr>
<td>OB 1.9</td>
<td>The basics of rhetoric</td>
<td>5</td>
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**Optional components by Student's Choice**

<table>
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<th>Course Title</th>
<th>Credits</th>
<th>Type</th>
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<tbody>
<tr>
<td>OS 1</td>
<td>Discipline 1 (from the general university list)</td>
<td>3</td>
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</tr>
<tr>
<td>OS 2</td>
<td>Discipline 2 (from the general university list)</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>6</strong></td>
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**Optional components by specialty (block 1)**

<table>
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<th>Course Code</th>
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<th>Type</th>
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<tr>
<td>OB 1.1</td>
<td>Insurance</td>
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<td>exam</td>
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<tr>
<td>OB 1.2</td>
<td>Insurance services</td>
<td>5</td>
<td>exam</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
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**Optional components by specialty (block 2)**

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<tr>
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<th>Credits</th>
<th>Type</th>
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</thead>
<tbody>
<tr>
<td>OB 2.1</td>
<td>The economy of rural communities</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>OB 2.2</td>
<td>Basic scientific research in economics</td>
<td>5</td>
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**Optional components by specialty (block 3)**

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<tbody>
<tr>
<td>OB 3.1</td>
<td>Accounting in applied software solutions</td>
<td>5</td>
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</tr>
<tr>
<td>OB 3.2</td>
<td>Databases and Database</td>
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**Optional components by specialty (block 4)**

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<tr>
<td>OB 4.1</td>
<td>The tax system</td>
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<tr>
<td>OB 4.2</td>
<td>Taxation of individuals and legal entities</td>
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**Optional components by specialty (block 5)**

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<td>Price and pricing</td>
<td>5</td>
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<tr>
<td>OB 5.2</td>
<td>Fundamentals of stock</td>
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**Optional components by specialty (block 6)**

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<tbody>
<tr>
<td>OB 6.1</td>
<td>Enterprises Reporting</td>
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<tr>
<td>OB 6.2</td>
<td>Audit</td>
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**Optional components by specialty (block 7)**

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<td>Finance companies</td>
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</tr>
<tr>
<td>OB 7.2</td>
<td>Investment</td>
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**Optional components by specialty (block 8)**

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<td>exam</td>
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<tr>
<td>OB 8.2</td>
<td>Sociology of Labor</td>
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<td>exam</td>
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**The total amount of Optional components**

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**3. OTHER TYPES OF TRAINING**

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**THE TOTAL AMOUNT OF EPP (without military training)**

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<tbody>
<tr>
<td></td>
<td></td>
<td><strong>240</strong></td>
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</table>
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

**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.

**Economics (Micro- Macroeconomics)** - 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. Also 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.

**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.

**Economic-mathematical 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.

**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.

Information systems and technologies in economy- object develops 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.

Management. The purpose of discipline is 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 agro market.

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.

Science of law. Purpose: to provide basic training of students in the field of formation of student’s basic knowledge of the theory of law, mastering the system of basic concepts of jurisprudence, mastering the most important provisions of certain legal branches and developing skills in their application in practice.
Compulsory components by decision of the Academic Council of the University


Technology of the industry I, II - Scientific bases of crop production. Modern agricultural technologies. Technological maps of growing crops. The concept of the programmable growing crops. The concept of the technology of storage, processing of various types of crop production. Also 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.

University education and social communication. The 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, 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. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

Evaluation and development of the enterprise - The 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.

Planning, strategy and control of the enterprise - The 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 production. The purpose of studying is 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.

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.

**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.

**Justification economic decisions and assessing risks.** The 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.

**Cost management.** The 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.


**Leadership and Career Management.** We address the issues of professional and social competencies necessary for effective career building, leadership assessment and self-development, issues of work motivation and management of mini-groups, building our own careers and organizing effective team development, positioning a young specialist in the labor market, current trends of professional development are analyzed.

**Placement of productive forces.** The task of studying the discipline is to master the theory of the location of productive forces, regional economy and regional development, scientific foundations of regional economic policy; mastering knowledge about the territorial and sectoral structure of the economic complex of Ukraine and its economic regions, etc. The purpose of studying the discipline is to form knowledge about the theoretical and practical foundations of the territorial organization of the productive forces of Ukraine, the current state and directions of regional economic development.

**Finance.** The 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.

**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.

**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.

**State regulation of Economy.** Studies the theoretical aspects of the formation, functioning and development of the system of state regulation of the Ukrainian economy, reveals the methodology, methodology and organizational basis of state regulation, presents a systematic presentation of theoretical and applied issues related to the substantiation of the economic policy of the state, as well as the mechanisms of its implementation in terms of formation and functioning of the mixed economy, reflects the achievements of modern theory and practice of state regulation of the economy.

**Optional components**

*Optional components by general training (block 1)*

Annotations of components “History of Ukrainian Statehood”, “Ethno-cultural studies”, see Section 2.1.

**Political science** - Laws, structure and functions of political science. Power and power relations. The political system of society, the place and role in it of the state. Political consciousness and political culture. Politics and national relations. Politics and ecology. National-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.

**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.
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.

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.

Ethics and aesthetics. Gives knowledge about the peculiarities and characteristics of the moral and artistic relation of man and the world, mastering the basic functions performed by ethics and aesthetics in the knowledge of all spheres of human existence, the structure of these spheres, the content of the main categories and the significance of such knowledge for work in different areas of human activity.

Basics of Rhetoric. Subject of rhetoric, the essence of the concepts and all sections of classical rhetoric. Modern science: style, poetics, pragmatics, theory of communication etc.

Selective components of professional training

Optional components by specialty (block 1)

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.

Optional components by specialty (block 2)

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;

**Basic scientific research in economics.** The purpose of this discipline is to highlight theoretical foundations, methodology, methodology, technology and organization of research activities in the economy, that is, the theoretical and practical grounds for the effective conducting of scientific research by students of economic specialties. The objectives of the course are to: Form students theoretical knowledge and practical skills in methodology, methodology, technology and organization of research activities in the economy with the wide use of teaching methodological and additional scientific literature.

**Optional components by specialty (block 3)**

**Accounting in applied software solutions.** Acquaintance with the possibilities of computer technologies in the management of the enterprise, getting them a clear understanding of methods and methods of accounting with the help of computer technology - to master and master the methods and techniques of organization and practical use of automated information systems in accounting.

**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.

**Optional components by specialty (block 4)**

**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.

**Taxation of individuals and legal entities.** studying the concept, system, principles, mechanism and role of taxation of individuals and legal entities; types of taxes paid by individuals; types of taxation of legal entities; tax conditions.

**Optional components by specialty (block 5)**

**Price and pricing.** Theories of pricing, the method of pricing. Limit value of the price, methodological atypical formation of prices in the conditions of inflation, ensuring the equivalence of accounting and prices in the agro-industrial complex.

**Fundamentals of stock** 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.

**Optional components by specialty (block 6)**

**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.


**Optional components by specialty (block 7)**

**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.


**Optional components by specialty (block 8)**

**Rationing and payment of labor.** Within the discipline the theoretical, methodological and applied questions related to the standardization and organization of remuneration in the process of activity of modern enterprises are taught. The main objective of the discipline is to formulate in future specialists an understanding of the conceptual foundations of labor standardization in modern conditions, the use of modern forms and systems of remuneration in the activities of enterprises. The subject of study is the general laws and peculiarities of standardization and remuneration of personnel of organizations. General patterns and peculiarities of organization and payment of personnel. Establishment of conditions (norms) of wages, establishment of labor duties of the employee, definition of the accounting system for payment of individual and collective results of labor; the procedure for making changes in the organization of remuneration. The main purpose of teaching discipline is to form a complex of theoretical knowledge and skills in the development and implementation of a rational organization of work of staff, rationing and remuneration, which would ensure the high efficiency of personnel.

**Sociology of Labor.** 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.
Bachelor
field of knowledge "Management and Administration"
in specialty "FINANCE, BANKING AND INSURANCE"

Educational and professional program «Finance, banking and insurance»

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. Sistema 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 (Educational-professional or Educational-scientific) 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"

**Educational and professional program «Finance, banking and insurance»**

<table>
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#### 1. GENERAL TRAINING CYCLE

**Compulsory components EPP**

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<td>Political Economy</td>
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<td>CC 2</td>
<td>Economics</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 3</td>
<td>Mathematics for Economists</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 4</td>
<td>Economic-mathematical methods and models</td>
<td>5</td>
<td>exam</td>
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<td>Econometrics</td>
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<tr>
<td>CC 6</td>
<td>Information systems and technologies in economy</td>
<td>5</td>
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<tr>
<td>CC 7</td>
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<tr>
<td>CC 8</td>
<td>Marketing</td>
<td>5</td>
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<td>CC 9</td>
<td>Statistics</td>
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<tr>
<td>CC 10</td>
<td>Science of law</td>
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**Compulsory components EPP by decision of the Academic Council of the University**

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#### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components EPP**

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<td>CC 21</td>
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<td>CC 22</td>
<td>Labor Economics and Labor Relations</td>
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<td>International Economics</td>
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<td>CC 25</td>
<td>Organization and planning of business activities</td>
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<td>CC 26</td>
<td>Financial activities of business entities</td>
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<td>CC 28</td>
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The total amount of Compulsory components: 189

**Optional components EPP**

**Optional components by general training (block 1)**

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<td>OB 1.1</td>
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<td>OB 1.2</td>
<td>Ethno-cultural studies</td>
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<td>OB 1.3</td>
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<tr>
<td>OB 1.4</td>
<td>Sociology</td>
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## CURRICULA AND PROGRAMS OF BACHELOR DEGREE

| OB 1.5 | Religious Science | 5 exam |
| OB 1.6 | Logic | 5 exam |
| OB 1.7 | Psychology and Pedagogics | 5 exam |
| OB 1.8 | Ethics and aesthetics | 5 exam |
| OB 1.9 | The basics of rhetoric | |
| OB 1.10 | Basic scientific research | 5 exam |
| **Total** | | 5 |

### Optional components by Student's Choice

| OS 1 | Discipline 1 (from the general university list) | 3 exam |
| OS 2 | Discipline 2 (from the general university list) | 3 exam |
| **Total** | | 6 |

### Optional components by specialty (block 1)

| OB 1.1 | Financial risks | 5 exam |
| OB 1.2 | Financial Controlling | 5 exam |
| **Total** | | 5 |

### Optional components by specialty (block 2)

| OB 2.1 | International Finance | 5 exam |
| OB 2.2 | Financial and credit systems of foreign countries | 5 exam |
| **Total** | | 5 |

### Optional components by specialty (block 3)

| OB 3.1 | Securities Transactions | 5 exam |
| OB 3.2 | Currency - Credit and Settlement Banking Transactions | 5 exam |
| **Total** | | 5 |

### Optional components by specialty (block 4)

| OB 4.1 | State regulation of Economy | 5 exam |
| OB 4.2 | National Economy | 5 exam |
| **Total** | | 5 |

### Optional components by specialty (block 5)

| OB 5.1 | Enterprise reporting | 5 exam |
| OB 5.2 | Audit | 5 exam |
| **Total** | | 5 |

### Optional components by specialty (block 6)

| OB 6.1 | Economic analysis | 5 exam |
| OB 6.2 | Financial analysis | 5 exam |
| **Total** | | 5 |

### Optional components by specialty (block 7)

| OB 7.1 | Price and pricing | 5 exam |
| OB 7.2 | Fundamentals of stock | 5 exam |
| **Total** | | 5 |

### Optional components by specialty (block 8)

| OB 8.1 | Leadership and Career Management | 5 exam |
| OB 8.2 | Social responsibility of business | 5 exam |
| OB 8.3 | Sustainability | 5 exam |
| **Total** | | 5 |

**The total amount of Optional components**: 40

### 3. OTHER TYPES OF TRAINING

**THE TOTAL AMOUNT OF EPP (without military training)**: 240
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

**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.

**Economics (Micro- Macroeconomics)** - 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. Also 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.

**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.

**Economic-mathematical 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.

**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.

**Information systems and technologies in economy** - object develops 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.

**Management.** The purpose of discipline is 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 agro market 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 agro market.

**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.

**Science of law.** Purpose: to provide basic training of students in the field of formation of students basic knowledge of the theory of law, mastering the system of basic concepts of jurisprudence, mastering the most important provisions of certain legal branches and developing skills in their application in practice.
CURRICULA AND PROGRAMS OF BACHELOR DEGREE

Compulsory components by decision of the Academic Council of the University


Technology of the industry I, II - Scientific bases of crop production. Modern agricultural technologies. Technological maps of growing crops. The concept of the programmable growing crops. The concept of the technology of storage, processing of various types of crop production. Also 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.

University education and social communication. The 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 system form, 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. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

Money and Credit The purpose of 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. The 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.

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 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.

**Public finance** 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. Proper understanding of the laws in the field of financial relations of the state, local authorities, economy and population; to discover ways of applying these laws in the practice of financial work; identify a set of measures that ensure the use of finance as one of the levers of economic policy of local governments.

**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.

**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.

**Treasury case.** Subject of the course: financial relations related to the formation, distribution and use of public financial resources necessary for public authorities to fulfill their tasks and powers. The purpose of the discipline is to broaden and deepen the theoretical and practical knowledge of students in the field of public finance management at the macro level and to ensure the implementation of the State Budget of Ukraine, the formation and implementation of the state budget, composition, structure, sources of formation, purpose and role of finance in ensuring the performance of public authorities. The objective of the discipline is to form a comprehensive system of knowledge about the treasury system of execution of the state budget and the peculiarities of the functioning of public finances in modern conditions.

**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.

**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.

**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.

**Organization and planning of business activities** - Objectives: to provide students with knowledge of the theory and practice of functioning of organizations and planning in the changing conditions of the modern market socio-economic environment, to regulate the processes that they take in relation to the external environment, etc.; mastering the basic methodological approaches of analysis of internal and external environment of organizations; acquisition of skills of building organizational structures of organizations of different types; acquisition of transformation skills, creation of image and culture of organizations. Entrepreneurship and business in the agrarian sphere: essence, tasks, advantages. Characteristics of business structures. Drawing up business plans. Creating your own business. It examines the topics that are necessary to successfully create your own business, including: thinking, ideation, planning, action and strategy. Instead of just considering the theoretical course, the lessons will focus on the whole process of actually creating your own business. The course includes lectures, practicals, discussions, cases, etc.
**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.

**Optional components**

*Optional components by general training (block 1)*

Annotations of components “History of Ukrainian Statehood”, “Ethno-cultural studies”, see Section 2.1.

**Political science** - Laws, structure and functions of political science. Power and power relations. The political system of society, the place and role in it of the state. Political consciousness and political culture. Politics and national relations. Politics and ecology. National-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.

**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.

**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.

**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.

**Ethics and aesthetics**. Gives knowledge about the peculiarities and characteristics of the moral and artistic relation of man and the world, mastering the basic functions performed by ethics and aesthetics in the knowledge of all spheres of human existence, the structure of these spheres, the content of the main categories and the significance of such knowledge for work in different areas of human activity.
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.

Basic scientific research - The purpose of this discipline is to highlight theoretical foundations, methodology, methodology, technology and organization of research activities in the economy, that is, the theoretical and practical grounds for the effective conducting of scientific research by students of economic specialties. The objectives of the course are to: Form students theoretical knowledge and practical skills in methodology, methodology, technology and organization of research activities in the economy with the wide use of teaching methodological and additional scientific literature.

Optional components of professional training

Optional components by specialty (block 1)

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 Controlling - Annotation of the discipline "Financial Controlling". Financial Controlling is a fundamentally new concept in enterprise management that is able to maintain the internal balance of the enterprise's economy and effectively develop it by generating objective information on costs and revenues, enabling optimal management decisions. It provides predictable business results and effective feedback, takes enterprise management to a completely new level, integrating and directing the activities of various departments and units of the enterprise to achieve the most important goals. Purpose of the course: formation of students theoretical knowledge and practical skills in financial control. Objectives of the course: study the nature, goals and principles of financial control, organization of financial control, mastering the implementation of operational and strategic control tools, setting up cost management systems and cost-oriented management, as well as modern methods of evaluating the performance and financial diagnostics of companies.

Optional components by specialty (block 2)

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.
Financial and credit systems of foreign countries. The rule of law and the main stages of evolution, the principles of the construction and the peculiarities of the forms of organization of monetary and credit systems of foreign countries in the conditions of the existence of developed financial markets and an extensive system of credit and financial institutions.

Optional components by specialty (block 3)

Securities Transactions. The work program of the academic discipline "Securities Transactions" will help students to understand the specifics of the stock market activity, especially the implementation of issuing and investment operations of banks, to understand the differences in securities portfolios, to know the essence of accounting and analysis of securities in the portfolios of the bank, the content of the risks of investment activities of banks on the securities market, understand the content of securities listing organization in the world and in Ukraine, and also know the functions of banks as underwriters, dealers and brokers. Particular attention is paid to the methodical principles of the activity of trading in securities, as well as issues of securities trading.

Currency - Credit and Settlement Banking Transactions. The aim is to form future specialists with specialist knowledge on the organization of work of credit institutions and the principles of functioning of the system of foreign exchange markets and the system of international lending in general. The discipline's task consists in mastering students theoretical knowledge and acquiring practical skills in performing credit-settlement and currency transactions, carried out in servicing foreign economic activity of exporters and importers.

Optional components by specialty (block 4)

State regulation of Economy. Studies the theoretical aspects of the formation, functioning and development of the system of state regulation of the Ukrainian economy, reveals the methodology, methodology and organizational basis of state regulation, presents a systematic presentation of theoretical and applied issues related to the substantiation of the economic policy of the state, as well as the mechanisms of its implementation in terms of formation and functioning of the mixed economy, reflects the achievements of modern theory and practice of state regulation of the economy.

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.

Optional components by specialty (block 5)


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.
**Optional components by specialty (block 6)**

**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.

**Optional components by specialty (block 7)**

**Price and pricing.** Theories of pricing, the method of pricing. Limit value of the price, methodological atypical formation of prices in the conditions of inflation, ensuring the equivalence of accounting and prices in the agro-industrial complex.

**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.

**Optional components by specialty (block 8)**

**Leadership and Career Management.** We are working on questions of professional and social competences for effective career development, assessment of leadership and self-development, issues of labour motivation and management of mini-groups, building of career and organization of effective team development, young specialist in the labour market, modern professional development trends are analysed.

**Social responsibility of business.** Formation of fundamental knowledge of the theory and practice of social responsibility of professional competences, study of theoretical positions and practice of interaction of the state, business, society and the person in the field of social responsibility.
Bachelor
field of knowledge "Management and Administration"
in specialty "ACCOUNTING AND TAXATION"

Educational-professional program «Accounting and Taxation»

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 (Educational-professional or Educational-scientific) 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»
### Educational-professional program «Accounting and Taxation»

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<tbody>
<tr>
<td>1</td>
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<tr>
<td><strong>1. GENERAL TRAINING CYCLE</strong></td>
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<tr>
<td>Compulsory components EPP</td>
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<tr>
<td>CC 1</td>
<td>Political Economy</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 2</td>
<td>Economics</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 3</td>
<td>Mathematics for Economists</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 4</td>
<td>Economic-mathematical methods and models</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 5</td>
<td>Econometrics</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 6</td>
<td>Information systems and technologies in economy</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 7</td>
<td>Management</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 8</td>
<td>Marketing</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>CC 9</td>
<td>Statistics</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 10</td>
<td>Science of law</td>
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<td>exam</td>
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<td>Compulsory components EPP by decision of the Academic Council of the University</td>
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<tr>
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<td>Philosophy</td>
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<td>CCU 2</td>
<td>Foreign Language</td>
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<tr>
<td>CCU 3</td>
<td>Technology of the industry I, II</td>
<td>10</td>
<td>exam</td>
</tr>
<tr>
<td>CCU 4</td>
<td>Labour and Life Safety</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CCU 5</td>
<td>Physical Training</td>
<td>5</td>
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<tr>
<td>CCU 6</td>
<td>University education and social communication</td>
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<td><strong>2. SPECIAL (PROFESSIONAL) TRAINING CYCLE</strong></td>
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<td>Compulsory components EPP</td>
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<td>CC 11</td>
<td>Theory of Accounting</td>
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<tr>
<td>CC 12</td>
<td>International Economy</td>
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<td>exam</td>
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<tr>
<td>CC 13</td>
<td>Organization and Planning of Production in Agricultural</td>
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</tr>
<tr>
<td>CC 14</td>
<td>Taxation System</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 15</td>
<td>Economics of Enterprise</td>
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<tr>
<td>CC 16</td>
<td>Finance</td>
<td>5</td>
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<tr>
<td>CC 17</td>
<td>Analysis of Economic Activity</td>
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<td>CC 18</td>
<td>Financial Accounting</td>
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<td>CC 19</td>
<td>Managerial Accounting</td>
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</tr>
<tr>
<td>CC 20</td>
<td>Accounting in Banks</td>
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<td>exam</td>
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<tr>
<td>CC 21</td>
<td>Accounting in the Public Sector</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 22</td>
<td>Reporting of the Enterprises</td>
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<tr>
<td>CC 23</td>
<td>Audit</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>CC 24</td>
<td>Internal and external control over the activities of agricultural formations</td>
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<tr>
<td>CC 25</td>
<td>Risk analysis of economic activity</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 26</td>
<td>Labor Economics and Social and Labor Relations</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 27</td>
<td>Accounting and Reporting in Taxation</td>
<td></td>
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<tr>
<td>CC 28</td>
<td>Educational practice</td>
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<td>CC 29</td>
<td>Internship</td>
<td>6</td>
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<tr>
<td>CC 30</td>
<td>Graduate design</td>
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<td>CC 31</td>
<td>State attestation</td>
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</table>
### Optional components EPP

#### Optional components by general training (block 1)

| OB 1.1  | History of Ukrainian Statehood | 5 | exam |
| OB 1.2  | Ethno-cultural studies         | 5 | exam |
| OB 1.3  | Political science              | 5 | exam |
| OB 1.4  | Sociology                      | 5 | exam |
| OB 1.5  | Religious Science              | 5 | exam |
| OB 1.6  | Logic                          | 5 | exam |
| OB 1.7  | Psychology and Pedagogics      | 5 | exam |
| OB 1.8  | Ethics and aesthetics          | 5 | exam |
| OB 1.9  | The basics of rhetoric         | 5 | exam |
| OB 1.10 | Leadership and Career Management | 5 | exam |

**Total** 5

#### Optional components by Student's Choice

| OS 1  | Discipline 1 (from the general university list) | 3 | exam |
| OS 2  | Discipline 2 (from the general university list) | 3 | exam |

**Total** 6

#### Optional components by specialty (block 1)

| OB 1.1 | Accounting in applied software solutions in the management of enterprises in the commercial sector | 5 | exam |
| OB 1.2 | Accounting in applied software solutions in the management of public sector enterprises | 5 | exam |

**Total** 5

#### Optional components by specialty (block 2)

| OB 2.1 | Sustainability                  | 5 | exam |
| OB 2.2 | Environmental Economics         | 5 | exam |
| OB 2.3 | State regulation of Economy     | exam |
| OB 2.4 | National Economy                | exam |

**Total** 5

#### Optional components by specialty (block 3)

| OB 3.1 | Insurance                       | 5 | exam |
| OB 3.2 | International Taxation          | 5 | exam |
| OB 3.3 | Mortgage Lending                | exam |
| OB 3.4 | Banking System                  | exam |
| OB 3.5 | Financial Market                | exam |
| OB 3.6 | Finance of the Enterprise       | exam |
| OB 3.7 | Investment                      | exam |

**Total** 5

#### Optional components by specialty (block 4)

| OB 4.1 | Accounting in industries        | 5 | exam |
| OB 4.2 | Accounting and reporting of small businesses | 5 | exam |

**Total** 5

#### Optional components by specialty (block 5)

| OB 5.1 | Project Analysis                | 5 | exam |
| OB 5.2 | Models and Methods in Analysis and Audit | 5 | exam |
| OB 5.3 | Digital Analysis                | 5 | exam |

**Total** 5

#### Optional components by specialty (block 6)

| OB 6.1 | Social responsibility           | 5 | exam |
| OB 6.2 | The Social Reporting            | 5 | exam |
| OB 6.3 | Cost management                 | exam |
| OB 6.4 | Fundamentals of stock activities | exam |

**Total** 5

#### Optional components by specialty (block 7)

| OB 7.1 | Economic legislation            | 5 | exam |
| OB 7.2 | Financial legislation           | 5 | exam |

**Total** 5

#### Optional components by specialty (block 8)

| OB 8.1 | Basics of the scientific research | 5 | exam |
| OB 8.2 | Methods of analysis and research  | 5 | exam |
Annotations of components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

**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.

**Economics (Micro- Macroeconomics)** - 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. Also 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.

**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.
Economic-mathematical 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.

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.

Information systems and technologies in economy - object develops 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.

Management. The purpose of discipline is 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 agro market 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 agro market.

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.

**Science of law.** Purpose: to provide basic training of students in the field of formation of students basic knowledge of the theory of law, mastering the system of basic concepts of jurisprudence, mastering the most important provisions of certain legal branches and developing skills in their application in practice.

**Compulsory components by decision of the Academic Council of the University**


**Technology of the industry I, II -** Scientific bases of crop production. Modern agricultural technologies. Technological maps of growing crops. The concept of the programmable growing crops. The concept of the technology of storage, processing of various types of crop production. Also 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.

**University education and social communication.** The 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 system form. The 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. SPECIAL (PROFESSIONAL) TRAINING CYCLE**

**Compulsory components**


**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.

**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.

**Economics of Enterprise.** The economic mechanism of functioning of the company, its development and use of resource potential in order to optimize economic performance.
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.


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.

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.


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.

Internal and external control over the activities of agricultural formations. Control of financial and economic activities, control of equity and liabilities, control of income, expenses and financial results.

Risk analysis of economic activity. The aim of the discipline is to acquire future specialists in the field of accounting and taxation of basic knowledge and systematic skills in analyzing, modeling and managing business risk, strategy and tactics of crisis management of economic object in real market conditions, making optimal decisions in uncertainty and conflict.

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.

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.
Optional components

Optional components by general training (block 1)

Annotations of components “History of Ukrainian Statehood”, “Ethno-cultural studies”, see Section 2.1.

**Political science** - Laws, structure and functions of political science. Power and power relations. The political system of society, the place and role in it of the state. Political consciousness and political culture. Politics and national relations. Politics and ecology. National-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.

**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.

**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.

**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.

**Ethics and aesthetics.** Gives knowledge about the peculiarities and characteristics of the moral and artistic relation of man and the world, mastering the basic functions performed by ethics and aesthetics in the knowledge of all spheres of human existence, the structure of these spheres, the content of the main categories and the significance of such knowledge for work in different areas of human activity.

**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.

**Leadership and Career Management** - We address the issues of professional and social competencies necessary for effective career building, leadership assessment and self-development, issues of work motivation and management of mini-groups, building our own careers and organizing effective team development, positioning a young specialist in the labor market, current trends of professional development are analyzed.
Optional components of professional training

Optional components by specialty (block 1)


Accounting in applied software solutions in the management of public sector enterprises. It is studied computer technology accounting in the public sector.

Optional components by specialty (block 2)


State regulation of Economy. Studies the theoretical aspects of the formation, functioning and development of the system of state regulation of the Ukrainian economy, reveals the methodology, methodology and organizational basis of state regulation, presents a systematic presentation of theoretical and applied issues related to the substantiation of the economic policy of the state, as well as the mechanisms of its implementation in terms of formation and functioning of the mixed economy, reflects the achievements of modern theory and practice of state regulation of the economy.

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.

Optional components by specialty (block 3)

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.

International Taxation. Examines fundamental theoretical foundations of international tax practice of agreements on avoidance of double taxation and using methods of international tax planning.

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.
Financial market. Features of the money market, Ukrainian and international capital markets, foreign exchange and derivatives segment, the specifics of various financial institutions.

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.


Optional components by specialty (block 4)

Accounting in industries. Features of methods and organization of accounting in trade enterprises, budgetary institutions and credit institutions and industry.

Accounting and reporting of small businesses. Theory and practice of financial (accounting) in small businesses in accordance with current legislation of Ukraine, national regulations and international standards.

Optional components by specialty (block 5)

Project Analysis. Alternatives and implementation of market approaches to meet social needs. The study of modern methods of investment projects management of economic entities.


Digital Analysis. The discipline studies the issues of computer processing of economic and financial information in the process of performing analytical and planning and economic calculations, the ability to create a user interface for the information-analytical model of a set of economic tasks of a specialist with Excel software.

Optional components by specialty (block 6)

Social Responsibility. Formation of basic knowledge of theory and practice of social responsibility of professional competence, learning theoretical principles and practices of cooperation between the state, business, society and the rights of CSR.

The Social (Nonfinancial) Reporting" course will help you understand how to make effective, interesting and informative reports on sustainable development, will allow you to study international reporting standards (GRI, ISO, Global Compact) and their practical application in Ukrainian companies. Learn more about the secrets of a social report, the strategy, start and preparation process, as well as practical tips on how to communicate your report to different categories of stakeholders.


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.

**Optional components by specialty (block 7)**

**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.

**Financial legislation.** Today, social, legal and political reforms are underway in Ukraine. In the conditions of cardinal changes of vital activity of our countries the maintenance of financial relations essentially changes, their legal regulation improves, and consequently, the role of financial law essentially increases. The purpose of this course is to form knowledge about the legal regulation of financial activities of the state and economic entities basic skills in the application of financial legislation.

**Optional components by specialty (block 8)**

**Basic scientific research** - The purpose of this discipline is to highlight theoretical foundations, methodology, technology and organization of research activities in the economy, thus, the theoretical and practical grounds for the effective conducting of scientific research by students of economic specialties. The objectives of the course are to: Form students theoretical knowledge and practical skills in methodology, technology and organization of research activities in the economy with the wide use of teaching methodological and additional scientific literature.

**Methods of analysis and research.** In the process of studying the discipline it is provided to get acquainted with the creation of a personal educational environment and profiles for the identification of the researcher in the scientometric space; review of regulations, initiatives and sources related to open science and open access, copyright in electronic content, ethics of electronic communications.
Bachelor
field of knowledge "Management and Administration"
in specialty "ENTREPRENEURSHIP, TRADE AND EXCHANGE ACTIVITIES"
Educational-professional program «Entrepreneurship, trade and stock activities»

<table>
<thead>
<tr>
<th>Form of Training:</th>
<th>Licensed number of persons:</th>
</tr>
</thead>
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<td>– Full-time</td>
<td>75</td>
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<tr>
<td>– Part-time</td>
<td>140</td>
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<tr>
<td>Duration of Training</td>
<td>4 years</td>
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<tr>
<td>Credits</td>
<td>240 ECTS</td>
</tr>
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<td>Language of Teaching</td>
<td>Ukrainian</td>
</tr>
<tr>
<td>Qualification</td>
<td>Bachelor in Entrepreneurship, Trade and Stock Activities</td>
</tr>
</tbody>
</table>

Concept of training
The specialty "Entrepreneurship, trade and stock activities" provides training of highly skilled professionals in the field of entrepreneurship, stock trading and trade, namely, competent managers and experts in the organization and specifics of agribusiness, stock trading and trade. The task of such training is the development of communicative, socio-psychological and organizational and economic competencies, skills of communication with a foreign language in professional activities, formation of theoretical and practical knowledge on the organization and conduct of business, student acquisition of competencies in determining priority areas and organization of their own business, plans, adoption of effective business decisions on the domestic and foreign markets, the ability to use the acquired knowledge on the issues of trading, and exchange operations in practice.

Practical training
Practical training is carried out at the following enterprises:
- PS RF "O.M. Muzychenko Velykositnyanske" 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 university students from among the advanced business structures of agribusiness, trade organizations and exchanges of Ukraine and abroad, which have the proper conditions for conducting students' practice in accordance with the requirements of educational professional programs of training specialists.

Proposed Topics for Bachelor theses
2. Business planning of entrepreneurial activity in agribusiness.
3. Business planning of entrepreneurship for processing agricultural products (by type of products).
4. Agrarian Exchange and its activities in Ukraine.
5. Status and prospects of the stock market development.
Academic rights of Graduates: graduates can apply for Master’s Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.

Employment of Graduates

Manager of small enterprise by types of economic activity and services; private entrepreneur; Head of the farm and small business in the agrarian sector; director of a trading firm; Sales Representative; sales manager; merchant; specialist in stock trading; broker; dealer; specialist in stock exchange operations; auctioneer (licitator); trading broker (broker), etc.
### Bachelor’s Program and Curriculum in Specialty
«Entrepreneurship, trade and stock activities»

Educational-professional program «Entrepreneurship, trade and stock activities»

<table>
<thead>
<tr>
<th>Code</th>
<th>Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<tr>
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<tr>
<td>1</td>
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<td>2</td>
<td>3</td>
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</tbody>
</table>

1. **GENERAL TRAINING CYCLE**

**Compulsory components EPP**

| CC 1 | Political Economy | 5 | exam |
| CC 2 | Economics         | 5 | exam |
| CC 3 | Higher mathematics| 5 | exam |
| CC 4 | Economic-mathematical methods and models | 5 | exam |
| CC 5 | Econometrics      | 5 | exam |
| CC 6 | Information systems and technologies in economy | 5 | exam |
| CC 7 | Management        | 5 | exam |
| CC 8 | Marketing         | 5 | exam |
| CC 9 | Statistics        | 5 | exam |
| CC 10| Science of law    | 5 | exam |

**Total** 50

**Compulsory components EPP by decision of the Academic Council of the University**

| CCU 1 | Philosophy | 5 | exam |
| CCU 2 | Foreign Language | 10 | exam |
| CCU 3 | Technology of the industry I, II | 10 | exam |
| CCU 4 | Labour and Life Safety | 5 | exam |
| CCU 5 | Physical Training | 5 | test |
| CCU 6 | University education and social communication | 2 | exam |

**Total** 37

2. **SPECIAL (PROFESSIONAL) TRAINING CYCLE**

**Compulsory components EPP**

| CC 11 | Price and pricing | 5 | exam |
| CC 12 | Commodity studies | 5 | exam |
| CC 13 | Cost management | 5 | exam |
| CC 14 | Entrepreneurship | 10 | exam |
| CC 15 | Economics of Enterprise | 5 | exam |
| CC 16 | Organization of trade. | 5 | exam |
| CC 17 | Labor economics and socio-labor relations | 5 | exam |
| CC 18 | Exchange activities | 5 | exam |
| CC 19 | Organization of agribusiness | 10 | exam |
| CC 20 | Trade Logistics | 5 | exam |
| CC 21 | Organization of production | 5 | exam |
| CC 22 | Business evaluation | 5 | exam |
| CC 23 | Finance | 5 | exam |
| CC 24 | Accounting | 5 | exam |
| CC 25 | Business planning | 5 | exam |
| CC 26 | Brokerage activities | 5 | exam |
| CC 27 | Educational practice | 4 | test |
| CC 28 | Internship | 6 | exam |
| CC 29 | Graduate design | 1 | exam |
| CC 30 | State attestation | 1 | exam |

**Total** 102

The total amount of Compulsory components 189

**Optional components EPP**

| OB 1.1 | History of Ukrainian Statehood | 5 | exam |
| OB 1.2 | Ethno-cultural studies | 5 | exam |
| OB 1.3 | Political science | 5 | exam |
| OB 1.4 | Sociology | 5 | exam |

**Optional components by general training (block 1)**

| OB 1.1 | History of Ukrainian Statehood | 5 | exam |
| OB 1.2 | Ethno-cultural studies | 5 | exam |
| OB 1.3 | Political science | 5 | exam |
| OB 1.4 | Sociology | 5 | exam |
| OB 1.5 | Religious Science | 5 | exam |
| OB 1.6 | Logic | 5 | exam |
| OB 1.7 | Psychology and Pedagogics | 5 | exam |
| OB 1.8 | Ethics and aesthetics | 5 | exam |
| OB 1.9 | The basics of rhetoric | 5 | exam |
| OB 1.10 | Business protocol and ethics of communication | 5 | exam |
| **Total** | **5** | | |

**Optional components by Student’s Choice**

| OS 1 | Discipline 1 (from the general university list) | 3 | exam |
| OS 2 | Discipline 2 (from the general university list) | 3 | exam |
| **Total** | **6** | | |

**Optional components by specialty (block 1)**

| OB 1.1 | E-commerce | 5 | exam |
| OB 1.2 | Sales Management | 5 | exam |
| **Total** | **5** | | |

**Optional components by specialty (block 2)**

| OB 2.1 | Sustainability | 5 | exam |
| OB 2.2 | Basics of the scientific research | 5 | exam |
| **Total** | **5** | | |

**Optional components subjects by specialty (block 3)**

| OB 3.1 | International trade | 5 | exam |
| OB 3.2 | International Economics | 5 | exam |
| **Total** | **5** | | |

**Optional components by specialty (block 4)**

| OB 4.1 | Taxation of legal entities and individuals | 5 | exam |
| OB 4.2 | The tax system | 5 | exam |
| **Total** | **5** | | |

**Optional components by specialty (block 5)**

| OB 5.1 | Business risk | 5 | exam |
| OB 5.2 | Agricultural hedging | 5 | exam |
| **Total** | **5** | | |

**Optional components by specialty (block 6)**

| OB 6.1 | Social responsibility | 5 | exam |
| OB 6.2 | Leadership and Career Management | 5 | exam |
| **Total** | **5** | | |

**Optional components by specialty (block 7)**

| OB 7.1 | Strategy and business development | 5 | exam |
| OB 7.2 | Cooperation in entrepreneurship | 5 | exam |
| **Total** | **5** | | |

**Optional components by specialty (block 8)**

| OB 8.1 | Investment | 5 | exam |
| OB 8.2 | Project analysis | 5 | exam |
| OB 8.3 | Reporting of the Enterprises | 5 | exam |
| **Total** | **5** | | |

**The total amount of Optional components**

| **40** | | |

3. OTHER TYPES OF TRAINING

| CC .... | |
| THE TOTAL AMOUNT OF EPP (without military training) | **240** |
Annotations of components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

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.

Economics (Micro-Macroeconomics) - 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. Also 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.

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.

Economic-mathematical 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.

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
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.

**Information systems and technologies in economy** - object develops 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.

**Management.** The purpose of discipline is 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 agro market 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 agro market.

**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.

**Science of law.** Purpose: to provide basic training of students in the field of formation of students basic knowledge of the theory of law, mastering the system of basic concepts of jurisprudence, mastering the most important provisions of certain legal branches and developing skills in their application in practice.
Compulsory components by decision of the Academic Council of the University


Technology of the industry I, II - Scientific bases of crop production. Modern agricultural technologies. Technological maps of growing crops. The concept of the programmable growing crops. The concept of the technology of storage, processing of various types of crop production. Also 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.

University education and social communication. The 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 system of socio-cultural environment, 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. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

Price and pricing. Theories of pricing, the method of pricing. Limit value of the price, methodological atypical formation of prices in the conditions of inflation, ensuring the equivalence of accounting and prices in the agro-industrial complex.

Commodity studies. Requirements for stock commodities and their features, classification of exchange commodities; general characteristics of the agricultural and food products group; peculiarities of international standards for agro-food products; the main fixed assets of futures contracts on the agro food market.

Cost management. The purpose of the discipline is to provide the students with the necessary theoretical foundations, methodological approaches and practical skills regarding the principles, methods and methods of developing and implementing the general strategy and directions of the industrial activity of the industrial enterprise; development and implementation of a modern production system, including the development of production processes, decisions on location of production capacities, enterprise design, product, implementation of standards and standards for the execution of works; planning and control of the current functioning of the production system. To achieve the goal set the following main objectives: the study of production processes in their relationship, formed under the influence of objective economic laws and factors of subjective order; scientific substantiation of decisions on the assessment of business plans with an objective assessment of their implementation.

Entrepreneurship. Essence of entrepreneurial activity; main types and forms of entrepreneurial activity; the essence of small business; main stages of preparation and registration of constituent documents of small business entities; the essence of an entrepreneurial agreement (contract); main types and types of contracts, their general components and specific features; features of the structure of business contracts and related types of risks; essence of business planning of entrepreneurial activity; main
components of the business plan and their general characteristics; essence, features and main forms of financing of entrepreneurship and their characteristics.

**Economics of Enterprise.** Economic mechanism of operation of the enterprise, formation and use of its resource potential with the purpose of optimization of economic results of activity.

**Organization of trade.** Theoretical foundations of the trade organization. Organizational models in the trading system. Organizational and economic principles of trade operations. Organizational conditions for the implementation of wholesale and retail trade. Regulation of wholesale and retail trade.

**Labor economics and socio-labor relations.** Studying the methodology and methods of analysis of the internal labor market, planning and analysis of the system of labor indicators at the enterprise; acquiring skills in solving practical problems of the labor economy.


**Trade Logistics.** Perspectives and priorities of development of logistic systems and logistic chains; modern trends in the development of supply and marketing, commercial intermediary organizations subordinated to different levels of management; forms and methods of managing the flows of material resources and their stocks; formation of the infrastructure of the market mechanism of trade in means of production; directions of formation of logistic information systems and their components of information flows; directions of formation of logistic service, its level and quality criteria.

**Organization of production.** Theoretical foundations of production organization; organization of complex production preparation and the process of organizational design and rationalization of production systems; organization of labor processes and standardization of labor; organization of the activities of the main production units and the industrial infrastructure of the enterprise.

**Business evaluation.** The concept of management system; types of agricultural enterprises and associations; organization of the land use, labor and material resources; social forms of production organization; planning and economic calculation in agricultural enterprises; organization of crop production, animal husbandry, industrial production and crafts.

**Finance.** Essence, types and functions of finance of agroindustrial complex. Finances of enterprises, formation and use of profits, working capital, lending to enterprises, financial support, restoration of fixed assets, indicators of financial condition of enterprises and their estimation. Stability of monetary systems and directions of improvement of monetary and credit relations in Ukraine and, in particular, in the agroindustrial complex.


**Business planning.** Purpose: studying the theoretical foundations of strategic planning, mastering the skills and tools of strategic analysis and formation of enterprise strategies, as well as knowledge systems on the methodology of long-term and current plans developing in the enterprise and monitoring their implementation.

Optional components

Optional components by general training (block 1)

Annotations of components “History of Ukrainian Statehood”, “Ethno-cultural studies”, see Section 2.1.

Political science - Laws, structure and functions of political science. Power and power relations. The political system of society, the place and role in it of the state. Political consciousness and political culture. Politics and national relations. Politics and ecology. National-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.

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.

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.

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.

Ethics and aesthetics. Gives knowledge about the peculiarities and characteristics of the moral and artistic relation of man and the world, mastering the basic functions performed by ethics and aesthetics in the knowledge of all spheres of human existence, the structure of these spheres, the content of the main categories and the significance of such knowledge for work in different areas of human activity.

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.

Business protocol and ethics of communication. National and religious peculiarities of labor ethics; the history of ethics, basic concepts, terms and methods of business communication, modern views on the place of ethics in business; professional ethics codes, ethical requirements for the manager.
Optional components of professional training

Optional components by specialty (block 1)


Sales management. The purpose of this course is to develop theoretical knowledge and practical skills in the field of sales management, taking into account the satisfaction of consumers' needs and ensuring the enterprises efficiency. Studying the course will provide the ability to properly organize, sales, evaluate their effectiveness, use of modern methods of sales forecasting, etc.

Optional components by specialty (block 2)


Basics of the scientific research. The purpose of this discipline is to highlight theoretical foundations, methodology, technology and organization of research activities in the economy, that is, the theoretical and practical grounds for the effective conducting of scientific research by students of economic specialties. The objectives of the course are to: Form students theoretical knowledge and practical skills in methodology and organization of research activities in the economy with the wide use of teaching methodological and additional scientific literature.

Optional components by specialty (block 3)

International trade. The purpose of the course is to formulate theoretical foundations in the field of international economy, which requires understanding of the international trade laws and mechanism. The subject of the course is to study the economic relations in the field of international trade, especially in agrarian markets. The objectives of the course are aimed at forming a complex knowledge among students about: the essence of concepts, stages and indicators of international trade development; modern forms of of international trade; features and tendencies of international trade methods; systems of international trade regulation, etc.

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.

Optional components by specialty (block 4)

Taxation of legal entities and individuals. Study of the concept, system, principles, mechanism and role of taxation of individuals and legal entities; types of taxes paid by individuals; types of taxation of legal entities; tax conditions.
The tax system. Studying of theoretical and organizational bases of taxation, methods of calculations and the order of payment of taxes and obligatory payments of legal entities and individuals.

Optional components by specialty (block 5)


Optional components by specialty (block 6)

Social responsibility of business. Formation of fundamental knowledge of the theory and practice of social responsibility of professional competences, study of theoretical positions and practice of interaction of the state, business, society and the person in the field of social responsibility.

Leadership and Career Management - We address the issues of professional and social competencies necessary for effective career building, leadership assessment and self-development, issues of work motivation and management of mini-groups, building our own careers and organizing effective team development, positioning a young specialist in the labor market, current trends of professional development are analyzed.

Optional components by specialty (block 7)

Strategy and business development. General concepts and approaches to the formation of enterprise strategy; basic rules for the formation of enterprise strategies and strategic analysis; criteria for classification of enterprise strategy and justification for choosing a particular strategy; the issue of managing the strategic activity of the enterprise.

Cooperation in entrepreneurship. Theoretical and methodological, organizational and economic principles of co-operation; the history of formation, development and regularities of the successive transformations of the cooperative movement in the world and in Ukraine; the essence of cooperative values and principles approved by the International Cooperative Alliance; types of cooperatives; the features of management of agricultural servicing cooperatives, the difference in the management of co-operative groups from the management of other forms of economic activity; objective and subjective needs for the development of cooperation in Ukraine; the basis of the process of creation and liquidation of cooperatives; the basis of state support.

Optional components by specialty (block 8)

**Project analysis.** Alternatives to implementing market approaches and justifying projects to meet public needs. Studying of modern methods of management of investment projects by subjects of economic activity.

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
Address: Bldg. 10, room 313,525

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

075 Marketing

Educational-professional Program «Marketing»

Guarantor of the program – Doctor of economic Sciences, Professor, Ruslan Buriak

Graduating department:

Department of marketing and international trade
Voice: (044)527-89-78
E-mail: market_chair@nubip.edu.ua
Department heard - Doctor of economic Sciences, Professor, Ruslan Buriak

073 Management

Educational-professional Program «Management»

Guarantor of the program - Doctor of Economics, professor Tetiana Mostenska

Graduating departments:

Department of management named after I.S.Zavadskiy
Voice: (044)527-84-80
E-mail: kafedra.zavadskogo@i.ua
Head of Department - Doctor of Economics, Professor Nadiia Reznik

Department of business administration and foreign international activity
Voice: (044)527-86-51
E-mail: worldagro_chair@nubip.edu.ua
Head of Department - Doctor of Economics, professor Tetiana Mostenska

Department of Production and investment management
Voice: (044)527-80-81
E-mail: prodinvestman@nubip.edu.ua
Head of Department - Doctor of Economic Sciences, Professor, Associate member of the National academy of sciences of Ukraine Lidiia Shynkaruk
**Curricula and Programs of Bachelor Degree**

**Bachelor**  
Field of Knowledge "Management and Administration"  
in Specialty «MARKETING»  
Educational-professional program "Marketing"

<table>
<thead>
<tr>
<th>Form of Training:</th>
<th>Licensed number of persons:</th>
</tr>
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<tbody>
<tr>
<td>– full-time</td>
<td>60 persons</td>
</tr>
<tr>
<td>– extramural</td>
<td>60 persons</td>
</tr>
</tbody>
</table>

Term of training 4 years  
Credits 240 ECTS  
Language of Teaching Ukrainian, English  
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 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.  
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.  
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 (Educational-professional or Educational-scientific) 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”

**Educational-professional program “Marketing”**

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
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</tbody>
</table>

#### 1. GENERAL TRAINING CYCLE

**Compulsory components**

<table>
<thead>
<tr>
<th>Code</th>
<th>Component</th>
<th>Credits</th>
<th>Type of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC 1</td>
<td>High math</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 2</td>
<td>Probability theory and math statistic</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 3</td>
<td>Statistics</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 4</td>
<td>Psychology of Success</td>
<td>3</td>
<td>exam</td>
</tr>
<tr>
<td>CC 5</td>
<td>Economy and finance of the Enterprise</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 6</td>
<td>Management</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 7</td>
<td>Econometrics</td>
<td>3</td>
<td>exam</td>
</tr>
<tr>
<td>CC 8</td>
<td>Math programming</td>
<td>3</td>
<td>exam</td>
</tr>
<tr>
<td>CC 9</td>
<td>Accounting</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 10</td>
<td>Technology of presentations and speechwriting</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 11</td>
<td>Economic Informatics</td>
<td>4</td>
<td>exam</td>
</tr>
</tbody>
</table>

**Compulsory components EPP by decision of the Academic Council of the University**

<table>
<thead>
<tr>
<th>Code</th>
<th>Component</th>
<th>Credits</th>
<th>Type of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC 1.1</td>
<td>Foreign language</td>
<td>12</td>
<td>exam, test</td>
</tr>
<tr>
<td>CC 1.2</td>
<td>System of technologies</td>
<td>8</td>
<td>exam</td>
</tr>
<tr>
<td>CC 1.3</td>
<td>Physical training</td>
<td>4</td>
<td>test</td>
</tr>
<tr>
<td>CC 1.4</td>
<td>Establishing your own business</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 1.5</td>
<td>Introductive to specialty: Bases</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 1.6</td>
<td>Legislative providing of managerial activities</td>
<td>4</td>
<td>exam</td>
</tr>
</tbody>
</table>

#### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components**

<table>
<thead>
<tr>
<th>Code</th>
<th>Component</th>
<th>Credits</th>
<th>Type of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC 12</td>
<td>Economics</td>
<td>12</td>
<td>exam, test</td>
</tr>
<tr>
<td>CC 13</td>
<td>Marketing</td>
<td>4</td>
<td>exam, c.p.</td>
</tr>
<tr>
<td>CC 14</td>
<td>Marketing by type of activity: services, industrial, agricultural</td>
<td>12</td>
<td>exam, test, c.p.</td>
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<tr>
<td>CC 15</td>
<td>Commodity market infrastructure</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 16</td>
<td>Logistic</td>
<td>3</td>
<td>exam</td>
</tr>
<tr>
<td>CC 17</td>
<td>Human resource management</td>
<td>3</td>
<td>exam</td>
</tr>
<tr>
<td>CC 18</td>
<td>World Economy and International Trade</td>
<td>5</td>
<td>exam, test</td>
</tr>
<tr>
<td>CC 19</td>
<td>Marketing Product Policy with the Basics Of Commodity Studying</td>
<td>7</td>
<td>exam, test, c.p.</td>
</tr>
<tr>
<td>CC 20</td>
<td>Bases of Internet Marketing</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 21</td>
<td>Marketing research</td>
<td>4</td>
<td>exam, c.p.</td>
</tr>
<tr>
<td>CC 22</td>
<td>Consumer Behavior</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 23</td>
<td>Marketing Pricing Policy</td>
<td>7</td>
<td>exam, test, c.p.</td>
</tr>
<tr>
<td>CC 24</td>
<td>Marketing Communications</td>
<td>7</td>
<td>exam, test</td>
</tr>
<tr>
<td>CC 25</td>
<td>Marketing distribution policy</td>
<td>3,5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 26</td>
<td>International Marketing</td>
<td>3,5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 27</td>
<td>Quality Management of Goods and Services</td>
<td>3,5</td>
<td>exam</td>
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</table>

**the amount of compulsory components**

144

#### Optional components

**Optional Block 1. «Marketing of goods and services»**

<table>
<thead>
<tr>
<th>Code</th>
<th>Component</th>
<th>Credits</th>
<th>Type of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>OB 1.1</td>
<td>Introductive to specialty: social communications</td>
<td>5</td>
<td></td>
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<tr>
<td>OB 1.2</td>
<td>Marketing in a digital environment</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.3</td>
<td>Bases of advertising</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.4</td>
<td>E-commerce</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.5</td>
<td>Sales management</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.6</td>
<td>Information systems in Marketing</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.7</td>
<td>Commercial-intermediary activity</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.8</td>
<td>Risk-Management</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.9</td>
<td>Project analysis</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.10</td>
<td>Business foreign language</td>
<td>4</td>
<td>exam</td>
</tr>
</tbody>
</table>
### CURRICULA AND PROGRAMS OF BACHELOR DEGREE

<table>
<thead>
<tr>
<th>OB 1.11</th>
<th>Marketing analyze</th>
<th>5</th>
<th>exam</th>
</tr>
</thead>
</table>

**Optional Block 2. «Internet Marketing»**

| OB 2.1  | Introductive to specialty: social communications | 5 | test |
| OB 2.2  | Internet communication | 6 | exam |
| OB 2.3  | Content Marketing | 5 | exam |
| OB 2.4  | Marketing of Social Networks | 5 | exam |
| OB 2.5  | Internet analytics | 5 | exam |
| OB 2.6  | E-commerce | 5 | exam |
| OB 2.7  | Risk-Management | 5 | test |
| OB 2.8  | Marketing audit | 5 | exam |
| OB 2.9  | Marketing of non-profit organizations | 5 | exam |
| OB 2.10 | Project analysis | 4 | exam |
| OB 2.11 | Business foreign language | 4 | exam |

**Optional components by Student’s Choice**

| OB 3.1  | Optional discipline 1 | 3 | exam |
| OB 3.2  | Optional discipline 2 | 3 | exam |

**The total amount optional components**

60

### 3. OTHER TYPES OF TRAINING

| OB 3.1  | Studying practice | 8 |
| OB 3.2  | Industry practice | 4 |
| State attestation | 1 |
| Bachelors qualification thesis (diploma or project) | 5 |

**THE TOTAL AMOUNT OF EPP**

240

**Annotations of Components in the curriculum**

#### 1. GENERAL TRAINING CYCLE

**Compulsory components**

**Higher 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.

**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.

**Psychology of success.** The purpose of the academic discipline lies in studying the objective laws, mechanisms of generation and development of psychological cognitive processes, properties, states and formations and their role in the training of a successful specialist. The task of the discipline is to create a system of theoretical and methodological knowledge on the problems of psychological science and practice, cognition of the structural elements of the psyche - the psychological cognitive processes, properties, states and formations at the reproduction and interpretation level for practical application and implementation in the process of a future specialist's professional activity.

**Economy and finance 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 economy and finance 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.

**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.

**Math programming.** This discipline teaches students to use methods of economic-mathematical models in their professional careers. The main directions of studying of the discipline are the following: mathematical model in the system of material and ideal models, the research of economic processes through mathematical-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.

**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 studying 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.

**Technology of presentations and speechwriting.** The purpose of teaching is to prepare students for presentations, reports in front of the staff at various levels, training and teaching methods of designing websites in order to bring their ideas to the audience /consumer. The objective of discipline is learning the methods for creating presentations and websites, acquaintance with the basics of building a report; usage the analytical schemes of research the verbal and nonverbal communications, which are necessary for understanding the political strategically influence of different international relations' subjects; to give necessary knowledge in sphere of the technology of oratorical influence.
for different subjects; to learn students to use appropriate tools of verbal and nonverbal communication models in marketing.

**Economic informatics.** The formation of 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.

**Compulsory components by decision of the Academic Council of the University**

**Annotations of Compulsory components**  see Section 2.1.

### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components**

**Economics.** 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. 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, i.e. the process of developing, adopting and implementing decisions regarding the selection and use of scarce resources in order to obtain the greatest possible benefit.

**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.

**Marketing by type of activity: services, industrial, agricultural.** 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 service, industrial and agricultural products; to form the knowledge about branch market features. The task of discipline is students’ acquiring skills in market research of agricultural products, predicting conditions of trade, inventory management and quality of agricultural products, pricing, and promotion of goods on the domestic and foreign food markets, distribution and marketing of domestic products; 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); understanding the significance marketing tools absorption features in the organization, and businesses in the service sector, the ability to use this knowledge in practice activity; learning the theory of industrial marketing, methodology of marketing research, development and planning of marketing strategies and their implementation in industrial enterprises, mastering modern methods of managing marketing communication activities in the areas of procurement, marketing, distribution.
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.

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.

Human resource management (HR). 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.

World economy and international trade. The purpose of teaching course is to form students' understanding of the theories and policies that guide international trade, modern changes in the structure of the world economy and trade, analysis of indicators of their development; Knowledge of forms and methods of organization and regulation of international exchange of goods, services and products of intellectual property, trends and prospects for the development of international trade, Aim: to form a complex of competences for students in planning, organizing and regulating the export / import in the system of international economic relations.

Marketing product policy. The purpose of discipline is learning 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 characteristics of goods and services; products' competitiveness; the main areas of commercial policy formation; train future professionals to the principles and methods of goods movement; systemizing the explore of the multitude of products through the rational application of classification and coding.

Bases of internet marketing. The purpose of teaching the academic discipline is to form the future specialists' basis knowledge of modern Internet marketing, gaining competencies in organizing and conducting Internet marketing activities, and evaluation of their effectiveness. In order to achieve the goal, the following tasks are assigned: mastering the basic methods and technologies of products/services promotion on the Internet; effective usage of the most popular Internet marketing technologies.

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.

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.

**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.

**Marketing communications.** The purpose of discipline is mastering the knowledge of effective goods / services' selling in order to make effective production, organizational and scientific decisions at the level of modern requirements. The target of course is learning the basic categories of marketing communications; acquaintance with methods of elaboration the advertising campaigns budget, algorithms of calculations the efficiency advertising appeal to target audience and acquisition of practical skills of their use in the process of product promotion and searching the reserves of its improvement; mastering of PR bases, formation of students' theoretical knowledge and practical skills of establishing two-way communication to identify common ideas or common interests and achieve mutual understanding based on truth, knowledge and full awareness.

**Marketing distribution policy.** The purpose of discipline is to teach students the basics of effective distribution of goods and services. In the course of studying the discipline, the theoretical and methodological principles of distribution marketing policy are considered, in particular, regarding the organization and management of commodity trades, wholesale and retail trade in distribution channels, and the organization of work of intermediaries; conceptual basis of understanding marketing policy of distribution and marketing logistics, public procurement and public procurement, choice of marketing policy and distribution channels.

**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.

**Quality management of goods and services.** Purpose of the discipline aims at the formation of a knowledge system of the basic principles, categories, methods and tools of quality management in modern companies, taking into account achievements of theory and practice of quality management; application of these achievements in all aspects of the organization's activity regardless of its branch affiliation, size and structure; providing a glimpse of systematic organization of quality management processes at an enterprise that meets the requirements of international standards. Task: the disclosure of the fundamental theoretical essences of the quality management modern concept; consideration of the assignment and mechanism of the application of classical and modern methods and tools for quality management in the enterprises current activities; obtaining skills for the development and implementation of quality management systems at the enterprise; building skills in the implementation of economic calculations to substantiate organizational and technical decisions for improving quality and productivity, as well as the application of modern methods for quality management of goods and services.
Optional components

Optional components by specialty (block 1)
«Marketing of goods and services»

Social communications. The main goal of the discipline is to assist students in acquiring the necessary theoretical knowledge and practical skills in the field of social education, transformation of social knowledge, social self-education and development to address modern social issues. As a result of studying the discipline, students will learn the basic concepts, principles, basic categories, trends and patterns of social education, the implementation of social learning and, accordingly, building a constructive social dialogue in society.

Marketing in a digital environment. This course examines the concept of digital marketing as one of the components of marketing. Particular attention is paid to communication channels specific to the digital environment. Methods of measurement of efficiency in various communication channels are analyzed. Separately, the integration of digital marketing in the marketing mix in general and in offline marketing in particular.

Bases of advertising. The purpose of the discipline is to inculcate among students a system of theoretical knowledge and practical skills in the organization and management of advertising activities at enterprises. The discipline's task consists in assimilation of the main components of the organization of advertising activity, understanding of the principles of advertising effectiveness, the choice of the media of advertising, the areas of creativity in advertising; principles and methodical approaches to generating new ideas in advertising; evaluation of advertising effectiveness.

E-commerce. The purpose of teaching the discipline is to: form higher knowledge theoretical knowledge and practical skills for the implementation of business transactions and transactions with the use of electronic information processing tools and the World Wide Web to ensure greater effectiveness of future entrepreneurial and professional activities. The tasks of studying the discipline are: systematization and expansion of knowledge about the structure and tools of work with information on the Internet; study of the main categories and forms of sales activity in the information and communication environment of the Internet; Identification of ways to improve the business activities of enterprises through the use of opportunities for doing business on the Internet; systematization of knowledge about electronic financial transactions in the Internet, determining the effectiveness of introducing elements of e-commerce in the activities of enterprises (organizations); systematization and introduction of Internet marketing and Internet advertising in entrepreneurship. Subject discipline - methodology and methods of construction, analysis of e-commerce systems and business technologies based on the use of information and communication capabilities of the Internet.

Sales management. The purpose of teaching discipline is: the acquisition of theoretical knowledge and practical skills from the basics of the process of analysis, planning, organization and control of sales. The tasks of studying the discipline are: assimilation of scientific and theoretical issues of distribution in market conditions; study of theoretical and practical issues of formation, design and functioning of distribution channels; providing future specialists-marketers with knowledge on the issues of researching the effective functioning of distribution channels; provision of the necessary knowledge on the choice and work with intermediaries, management of the activities of participants in the commodity movement; Students gain methodological and methodological skills in choosing and conducting distribution policies in conditions of competition and market conditions.

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.

**Commercial-intermediary activity.** The discipline studies modern approaches to the possibility of commercial management of intermediary enterprises in order to transfer to modern technologies, strategies, purchase and sale tactics; the use and application of modern forms, methods of commercial transactions for the effective operation of business intermediary companies.

**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.

**Project analysis.** The purpose of teaching discipline is to acquire theoretical knowledge and practical skills in conducting marketing, commercial, technical, social, environmental, institutional, financial and economic analysis in the implementation of investment projects. The subject of discipline is the methods of analysis of certain aspects of investment projects. According to this, a marketing specialist should know: a general characteristic of indicators and methods for assessing investment projects; Be able to: analyze investment project in any of its aspects.

**Business foreign language.** The overall objective of the program of foreign language teaching for specific purposes is to develop students' professional language competences that will contribute to their effective functioning in diverse cultural, educational and professional environment.

**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 studying the discipline are: acquisition 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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**Optional components by specialty (block 2)**

«Internet Marketing»

**Social communications.** The main goal of the discipline is to assist students in acquiring the necessary theoretical knowledge and practical skills in the field of social education, transformation of social knowledge, social self-education and development to address modern social issues. As a result of studying the discipline, students will learn the basic concepts, principles, basic categories, trends and patterns of social education, the implementation of social learning and, accordingly, building a constructive social dialogue in society.

**Internet communication.** The purpose of the discipline is to familiarize students with the complex of marketing communications on the Internet. The complex of marketing communications on the Internet, as well as traditional communications, consists of the following elements: advertising, sales promotion, direct marketing and public relations. The use of the Internet provides the specific features of these elements of the communication complex. In addition to these tools, the course deals with such special tools of Internet
communications as search marketing (SEM), search engine optimization - SEO, SMM - work with social networks, Email - marketing, blogging etc

**Content Marketing.** The purpose of the discipline is to teach students to attract attention and attract the target audience to the media product by creating and disseminating relevant valuable information and content related marketing content, mastering content marketing skills, managing activities in social media. Objectives and principles of content marketing, its advantages and risks, work with various social media platforms and communication channels, content marketing automation, custody, aggregation and content syndication, content marketing tactics and strategies, site content auditing and content audit marketing company.

**Marketing of Social Networks.** The purpose of teaching this discipline is to promote the formation of students of modern marketing thinking, acquisition of competences that will allow actively and creatively to participate in the development and practical application of modern tools for promoting business through social networks. Marketing Methods in Social Networks: Creating Brand Communities; work with the blogosphere; reputation management; personal branding; Social Media Optimization (SMO); non-standard SMM-promotion; promotion strategies in social networks; assessment and analysis of the effectiveness of work in social networks.

**Internet analytics.** The purpose of teaching discipline is to create knowledge and skills for students to use web analytics tools to optimize web resources. Internet analytics: statistics, trends, absolute and relative indicators; analysis of site attendance, usability analysis, analysis of the behavior of visitors on a page, determining the conversion paths of site visitors; benchmarking - comparing with general trends and with competitors through independent researchers (Alexa, GemiusAudience, Google Trends).

**E-commerce.** The purpose of teaching discipline is to develop competencies in the implementation of business transactions and transactions using electronic media. Online stores the notion of online store; the process of making a purchase; advantages and disadvantages; corporate sites main and additional features. providing services. trading venues the idea of a trading floor. business model; types of trading platforms; exchange; auction; catalog.

**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.

**Marketing audit.** The purpose of the discipline - to provide students with scientific and theoretical knowledge and practical skills in organizing a marketing audit, to teach methodological and organizational techniques for its use in modern marketing activities of the enterprise. This will allow students to form the appropriate knowledge of the theory of marketing audit of the enterprise; master the methodology of marketing audit in order to provide information and analytical support for marketing operations, reduce the likelihood and impact of commercial risk.

**Marketing of non-profit organizations.** The objectives of mastering the discipline are: to provide a systematic, deep and comprehensive study of the theoretical and methodological foundations of marketing and to promote the acquisition of skills in the development and adoption of managerial decisions in the field of marketing formation of non-profit organizations. Non-commercial marketing is an activity used to create, maintain or change the attitudes and relationships of target audiences to certain organizations and their professional activities. This type of marketing is related to the activities of non-profit organizations that aim to achieve a certain social effect by public institutions, health care
facilities, social security, culture, charitable organizations, mercy services, denominational institutions, churches, sects and, finally, political parties and movements.

**Project analysis.** The purpose of teaching discipline is to acquire theoretical knowledge and practical skills in conducting marketing, commercial, technical, social, environmental, institutional, financial and economic analysis in the implementation of investment projects. The subject of discipline is the methods of analysis of certain aspects of investment projects. According to this, a marketing specialist should know: a general characteristic of indicators and methods for assessing investment projects; Be able to: analyze investment project in any of its aspects.

**Business foreign language.** The overall objective of the program of foreign language teaching for specific purposes is to develop students’ professional language competences that will contribute to their effective functioning in diverse cultural, educational and professional environment.
**Curricula and Programs of Bachelor Degree**

**Bachelor**

**Field of Knowledge "Management and Administration"**

**In Specialty "MANAGEMENT"**

**Educational-professional program "Management"**

- **Form of training:**
  - Full-time: 150 persons
  - Extramural: 60 persons

- **Term of training:** 4 years

- **Credits ECTS:** 240

- **Language of instruction:** Ukrainian, English

- **Qualification of graduates:** Bachelor in management, manager administrator

**Concept of training**

The purpose of training specialists in "Management" is to provide enterprises and organizations in the field of agribusiness with highly qualified middle managers, heads of departments with skills in working with operating systems and processes. Bachelor's degrees in management and manager-administrator allow the graduate to quickly adapt to the internal economic relations of enterprises and organizations, quickly develop and implement elements of the management system, establish an effective management system, ensure effective communication and coordinated teamwork.

**Practical training**

Future specialists in management at specific enterprises acquire skills of working with modern management methods, knowledge of technological issues of the enterprise, the ability to manage interaction, the ability to manage their own development; build clear personal goals; ability to solve problems; ability to innovate; the ability to influence others, to manage the enterprise and individual departments. In the process of learning students acquire knowledge of modern management approaches; ability to teach and develop subordinates; substantiation and management decisions.

**Proposed Topics for Bachelor theses**

1. Improving the management system of labor potential of the enterprise.
2. Improving the system of evaluation of work and personal qualities of managers.
3. Business management and ways to improve it.
4. Improving the organization and motivation of work at the enterprise.
5. Development of communication systems in enterprise management.
6. Improving the process of making and implementing management decisions.
7. Formation of competitive strategies of enterprises.
8. Product quality management of the enterprise.
9. Business plan for the company's entry into the foreign market.
10. Risks of foreign economic transactions
11. Development of a business plan for the project
12. Investment project management

**Academic rights of Graduates:** graduates can apply for master’s degree Specialties and Educational (Educational-professional or Educational-scientific) 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»  
Educational-professional program "Management"

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational-professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<tbody>
<tr>
<td><strong>1. GENERAL TRAINING CYCLE</strong></td>
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<tr>
<td><strong>Compulsory components</strong></td>
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<tr>
<td>CC 1</td>
<td>High math for managers</td>
<td>4</td>
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<tr>
<td>CC 2</td>
<td>Probability theory and math statistic</td>
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<tr>
<td>CC 3</td>
<td>Legislative providing of managerial activities</td>
<td>4</td>
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<tr>
<td>CC 4</td>
<td>Statistics</td>
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<tr>
<td>CC 5</td>
<td>Marketing</td>
<td>4</td>
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<tr>
<td>CC 6</td>
<td>Econometrics</td>
<td>3</td>
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<td>CC 7</td>
<td>Economy and finance of the enterprise</td>
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<tr>
<td>CC 8</td>
<td>Economic and mathematic modelling</td>
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<td>CC 9</td>
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<tr>
<td>CC 13</td>
<td>Business protocol and negotiation</td>
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<tr>
<td>CC 14</td>
<td>Establishment of the own business</td>
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<td>CC 15</td>
<td><em>Technology systems</em></td>
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<td></td>
<td>System of technologies: Crop Production</td>
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<td></td>
<td>System of technologies: Livestock Production</td>
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<td>Physical training</td>
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<td>Management</td>
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<td>CC 22</td>
<td>Business analysis</td>
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<tr>
<td>CC 23</td>
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<td>CC 24</td>
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<td>CC 26</td>
<td>Risk-management</td>
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<tr>
<td>CC 27</td>
<td>Social communications</td>
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<td>Project management</td>
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<td>Theory of organization</td>
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<td>CC 19</td>
<td>Management</td>
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<td>Strategic management</td>
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<td>OB 1.9</td>
<td>Crisis management</td>
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<td>OB 1.10</td>
<td>Social management</td>
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<tr>
<td>OB 1.11</td>
<td>Asset management and investment portfolio</td>
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<tr>
<td>Optional Block 2 «Management organization and business administration»</td>
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<td>OB 2.1 Information systems in management</td>
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<tr>
<td>OB 2.3 Strategic management</td>
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<td>OB 2.4 Logistic</td>
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<tr>
<td>OB 2.5 Controlling</td>
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<tr>
<td>OB 2.6 Basics of cooperation</td>
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<tr>
<td>OB 2.7 Marketing Management</td>
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<tr>
<td>OB 2.8 Management of agro-industrial enterprise</td>
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<tr>
<td>OB 2.9 Commercial law</td>
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<tr>
<td>OB 2.10 Accounting and analytical support of management activity</td>
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<td>OB 2.11 Management of motivation</td>
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<td>OB 3.1 Information systems in management</td>
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<td>OB 3.2 Business English</td>
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<td>OB 3.3 Strategic management</td>
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<td>OB 3.4 Logistic</td>
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<tr>
<td>OB 3.5 Controlling</td>
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<tr>
<td>OB 3.6 International organizations</td>
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<tr>
<td>OB 3.7 Marketing in foreign international activity</td>
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<td>OB 3.8 International transportation</td>
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<tr>
<td>OB 3.9 Customs regulation of foreign economic operations</td>
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<tr>
<td>OB 3.10 Foreign commercial activity</td>
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<tr>
<td>OB 3.11 International economic integration, European integration</td>
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<tr>
<th>Optional Block 4 «Management of business»</th>
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<tbody>
<tr>
<td>OB 4.1 Information systems in management</td>
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<tr>
<td>OB 4.2 Business English</td>
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<tr>
<td>OB 4.3 Strategic management</td>
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<tr>
<td>OB 4.4 Logistic</td>
</tr>
<tr>
<td>OB 4.5 Controlling</td>
</tr>
<tr>
<td>OB 4.6 Implementation of business idea</td>
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<tr>
<td>OB 4.7 Management of small enterprises</td>
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<tr>
<td>OB 4.8 National and international programs and grants to support small business</td>
</tr>
<tr>
<td>OB 4.9 Legal regulation of business activity</td>
</tr>
<tr>
<td>OB 4.10 Features of accounting for an individual entrepreneur</td>
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<tr>
<td>OB 4.11 Consulting services</td>
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<th>Optional Block 5 «Logistic management»</th>
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<td>OB 5.2 Business English</td>
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<td>OB 5.4 Logistic</td>
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<td>OB 5.5 Controlling</td>
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<td>OB 5.6 Logistics infrastructure</td>
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<td>OB 5.7 Information systems in logistics</td>
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<td>OB 5.8 International transportation</td>
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<td>OB 5.9 Functional logistics</td>
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<td>OB 5.10 E-commerce</td>
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<td>OB 5.11 Warehouse logistics</td>
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<th>Optional components by Student’s Choice</th>
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<tr>
<td>OB 6.1 Optional discipline 1</td>
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<tr>
<td>OB 6.2 Optional discipline 2</td>
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<tr>
<td>OB 6.3 Sociology</td>
</tr>
<tr>
<td>Philosophy</td>
</tr>
<tr>
<td>Technics of presentation and web-design</td>
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</tbody>
</table>

**Total amount of optional components** 63
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

Higher mathematics for managers. Formation of students' basic mathematical knowledge for solving problems in professional activities, skills of analytical thinking and mathematical formulation of economic problems that arise in the management process. The tasks to be solved in the process of studying the discipline are the acquisition by students of knowledge of the main sections of higher mathematics, proving the basic theorems, the formation of initial skills: performing actions on vectors, matrices, calculating determinants; solving systems of linear equations; study of shapes and properties of lines and planes, curves and surfaces of the second order; finding the boundary of exponential functions.

Probability theory and mathematical statistics. Formation of basic knowledge of future specialists on the basics of the application of probabilistic and statistical apparatus for solving theoretical and practical economic problems. Main tasks: providing students with knowledge of basic definitions, theorems, rules, proving theorems and skills; perform qualitative and quantitative mathematical analysis of random events, random variables and systems of such quantities; to carry out mathematical processing of statistical data; give a statistical estimate of the parameters of the general population.

Legal support of management activities. The purpose of studying the discipline is the need to train management professionals who will work in terms of building the rule of law and a market economy; study of a set of legal norms that regulate public relations and are formed during the executive authorities to ensure the implementation and protection of rights, freedoms and legitimate interests of individuals and legal entities, as well as in the management of economic, socio-cultural and administrative-political construction in the state, formation of legal awareness and legal culture among future employees of the business elite, legal regulation of economic activity, legal status of business entities and state bodies th power.

Statistics. Teaching the discipline aims to form in future professionals theoretical knowledge and practical skills of statistical evaluation of economic phenomena and processes of social life, mastering the methods of statistical analysis. The main tasks to be solved in the process of teaching the discipline are: collection, verification and evaluation of statistical information, development of statistical forms; compilation and grouping of statistical observation materials, identification of connections between individual phenomena and processes, establishment of its structure; technique of calculating generalized statistical indicators and their economic interpretation.
Marketing. The purpose of the discipline: the formation of students' scientific worldview and special knowledge of theory, marketing methodology, development of skills and abilities to implement management functions in the enterprise on the basis of marketing to meet consumer needs and ensure effective operation.

Econometrics. The course examines the quantification and relationship of economic indicators for different sets of economic information. Testing arrays of information for compliance with certain prerequisites, as well as to determine the methods of quantitative measurement of relationships, which should be used in each case according to the characteristics of economic information.

Economics and finance of the enterprise. The purpose of studying the discipline is to form in students of modern economic thinking and a system of special knowledge about the basic concepts of economic and financial activities of the enterprise, the content of its individual areas and their relationship, the system of indicators that characterize it.

Economic and mathematical modeling. The purpose of studying the discipline is to form a system of knowledge on methodology and tools for building and using different types of economic and mathematical models, studying the basic principles and tools of problem statement, building economic and mathematical models, methods of solving and analyzing them for use in economics. basics and practical skills in setting, solving optimization and management problems of economics tools of mathematical methods.

Accounting. The main purpose of studying the discipline is to form theoretical knowledge and acquire practical skills in organizing and maintaining accounting and auditing financial statements, as well as using their results as an information base for effective management decisions. The main task of studying the discipline is a thorough general economic and accounting training of specialists and their mastery of the principles, means, methods and techniques of accounting for commercial enterprises, as well as the audit of their financial statements.

Economic informatics. Formation of future specialists of modern level of information and computer culture, acquisition of practical skills of work on modern computer equipment and use of modern information technologies for the decision of various problems in practical activity on a specialty.

Economics. Module 1. Microeconomics. Investigates people's behavior and explains why and how they make certain economic decisions. Microeconomics studies the behavior of individual economic entities in different market structures. The object of study of microeconomics is the behavior of microeconomic entities, i.e., the process of developing, making, and implementing decisions regarding the choice and use of limited resources in order to obtain the greatest possible benefit.

Module 2. Macroeconomics. Assimilation of the system of economic knowledge on which modern macroanalysis is based; acquiring skills in the study of aggregate indicators of economic and social development of the national economy through the use of universal tools and macroeconomic modeling. As a result of studying the discipline, students should know: patterns and general trends in economic processes at the macro level; identify the constituent macroeconomic aggregates and the links between them; methodical bases of calculation of macroeconomic indicators, forecasting of macroeconomic development; manifestations of cyclicity and indicators of the economic cycle.
Compulsory components by decision of the Academic Council of the University

Annotations of Compulsory components see section 2.1.

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

Organization theory. The main purpose of teaching the discipline is the formation of a modern, based on a systematic approach, worldview on the creation, operation and evolution of organizations. The main tasks to be solved in the process of teaching the discipline are: providing students with knowledge about the theory and practice of organizations in the changing conditions of modern market socio-economic environment, the regulation of processes that occur in their relationship with the environment and more.

Management. The main purpose of teaching the discipline is the formation of future managers of modern management thinking and a system of special knowledge in the field of management, the formation of understanding of the conceptual foundations of system management of organizations; acquisition of skills of analysis of internal and external environment, making adequate management decisions. Provide skills in the use of self-organization in the organization of production, the formation of practical skills and abilities to manage their own careers and self-improvement, development of personal time management skills, mastery of self-analysis and self-assessment of self-organization, minimizing stress and fatigue, familiarization with technology and ways to increase efficiency, efficiency.

International Economic Relations. Module 1. International economic relations. The purpose of teaching the discipline is to form in future managers a system of special knowledge on the problems and prospects of international economic relations for basic and special education and practical activities in the specialty. The result of the study of the discipline is: the formation of a holistic view of the processes that characterize the international level of interaction of national economies; mastering the latest approaches to assess the evolutionary nature of the development of the IEA system; mastering the culture of modern economic thinking.

Module 2. Economics of world agriculture. To teach students the laws of development of world agriculture, to provide future professionals with systematic and consistent knowledge about the economics of agriculture in some countries and regions in the development of agricultural production and international relations. The objectives of the discipline are: to form students' knowledge of the main patterns of agricultural development; to teach students to analyze the current state and assess future trends in the industry on a global scale, to determine the level of development of the agricultural economy of individual countries, to use methods and foreign experience to solve the problems of the agricultural economy of Ukraine.

Operational management. The main purpose of teaching the discipline is to form students' competence in basic principles, basic categories, modern concepts, theoretical principles and practical methods of managing the main activities of enterprises and skills to develop operational strategy, create and use industry operating subsystems as a basis for achieving mission.

Business analysis. Module 1. Business analysis.能力 to form an analytical conclusion from the submitted and researched information, study of enterprise structure, acquisition of skills of formation of business model of enterprise, study of place and role of business analysis at enterprise, mastering of theoretical bases of formation of successful
business decisions, definition of tasks, functions and management structure processes in
the enterprise, studying the process of business analysis and interpretation of its results.

Module 2. Financial and economic security. The purpose of the discipline is to
provide students with knowledge on creating a modern integrated system of financial and
economic security of enterprises of all forms of ownership and an effective mechanism for
managing financial and economic security, acquiring theoretical and practical principles of
organizing a comprehensive security system of enterprises as a basis for countering
threats and risks. Financial and economic security of enterprises, understanding of modern
threats and risks of enterprises, the choice of the most appropriate measures tasks and
tasks on counteraction to modern threats and risks of safety of activity of the enterprises,
an estimation of various market and professional situations for development and
realization of the most optimum decisions.

Management of team interaction. The purpose of the discipline is to master
students' skills of forming effective teams as one of the promising models of corporate
management, providing effective organizational development, studying the essence and
features of forming a management team, comprehensive and constructive use of team
effects, disclosure and enrichment of students in teamwork, causes and identifying
conditions for positive synergy of the team.

Human resource management. The purpose of teaching the discipline is to form a
set of theoretical knowledge and practical skills for the formation and implementation of
personnel policy in modern organizations, rational selection of employees for positions and
the formation of an effective workforce, evaluation and development of employees, and
targeted use of their potential.

Foreign economic activity of the enterprise. The purpose of the discipline is to
provide students with systematic knowledge of the objective laws, conditions, processes
and specific features of foreign economic activity (FEA) of the enterprise, as well as the
acquisition of skills for their practical use. The result of studying the discipline is the
formation of students' holistic understanding of the processes in the field of foreign
economic activity; mastering the culture of modern economic thinking, methodological
approaches to the analysis and evaluation of the effectiveness of foreign economic
activity; formation of students' skills and practical abilities to use the acquired knowledge in
the practice of foreign economic activity of enterprises on the application of empirical

Risk management. Module 1. Risk management. The purpose of teaching the
discipline is to provide knowledge about methods of estimating risk parameters that
characterize the quantitative relationships between economic variables. The objectives of
teaching the discipline - the study of predictive risk models, acquiring skills to use them in
the practice of managing economic processes. As a result of studying the discipline,
students should know: the essence, subject and object of the discipline, economic risk
modeling, the system of economic risk forecasting, the system of social risk forecasting,
methods of technical analysis.

Module 2. Theory of managerial decision making. The purpose of studying the
discipline is for students to master the theory of management decision-making methods
based on systems analysis, mathematical modeling and optimization of business entities
in a market economy and their practical and applied applications; elaboration by them on
specific, as close as possible to real, model case problems, examples and mathematical
models of methods of definition of optimum administrative decisions, with use of means of
computer engineering, packages of applied programs, modern information technologies,
etc.

Social communications. The main goal of the discipline is to maximally assist
students in acquiring the necessary theoretical knowledge and practical skills in the field of
social communication, transformation of social knowledge, social self-education and
development to address modern social issues. As a result of studying the discipline,
students will learn the basic concepts, principles, main categories, trends and patterns of socially responsible behavior and communication, socialization in the team and, accordingly, building a constructive social dialogue in society.

**Project management.** The main task of studying the discipline is the formation of theoretical knowledge about project management and practical skills of project management. As a result of studying the discipline, students will gain knowledge on financing, economic and technical-technological calculations in project management, determining the need and implementation of resource management and project team, use of project management functions and mechanisms for implementing management decisions in project management.

**Management of innovation and investment activities.** The main purpose of teaching the discipline is to master the modern theoretical foundations and practical skills of managing investment and innovation activities of the organization. The main tasks to be solved in the process of teaching the discipline are the theoretical training of students and the formation of their skills in the field of management of investment and innovation activities of the organization. The result of studying the discipline is the acquisition of special professional competencies in investment and innovation management.

**Optional components**

**Information systems in management.** The purpose of teaching the discipline is to reveal modern scientific concepts, models, methods and technologies of information management and research of the basic theoretical foundations of construction and use of computer information systems as a means of automation of information management.

**Business English.** The purpose of studying the discipline is to teach business vocabulary and features of business communication in English to ensure effective business communication, negotiation.

**Strategic management.** The main purpose of teaching the discipline is to master the modern theoretical foundations of strategic management and practical skills of strategic decision-making in the process of managing the activities and development of the enterprise in the market. The main tasks to be solved in the process of teaching the discipline are the theoretical training of students and the formation of their skills in the field of strategic enterprise management.

**Logistics.** The main purpose of teaching the discipline is to form in future professionals systematic knowledge and understanding of the conceptual foundations of logistics, theory and practice of development in this area and the acquisition of skills of independent work on learning material on modern methods of managing material and other flows in modern conditions.

**Controlling.** The discipline involves setting the purpose of the enterprise, the current collection and processing of information for management decisions, performing the function of monitoring deviations of actual data from the planned, and, most importantly, the preparation of recommendations for management decisions. Controlling is aimed at improving the efficiency of management and organization of economic management at the micro level.

**Optional block 1 «Management of investment activity and international projects»**

**Investment analysis.** The purpose of studying the discipline is a set of methods and techniques by which you can develop an effective investment strategy and make investment decisions, justify the feasibility of the investment project and determine the
optimal parameters of its implementation in uncertainty and limited financial resources, to form an optimal investment portfolio.

**International economic statistics.** The purpose of the discipline is to reveal the content of major phenomena and processes occurring in the economy, to develop a system of economic indicators and methods of studying the economy of the country or region, to characterize social phenomena as mass, based on the whole set of factors that determine their degree of development, direction and speed of their changes, the density of relationships and interdependencies, students master not only theoretical knowledge but also practical skills in collecting, processing, compiling and analyzing statistical material acquisition and future experts knowledge and skills to research the socio-economic condition of the state, based on objective information International economic statistics

**Management of production systems.** The purpose of studying the discipline is to study the set of processes or actions that determine the integration of elements, parts into a whole, the formation of viability of a stable system, internal order, interaction with respect to independent parts of the whole, due to its structure; identification of ways to combine the resources of land, labor, capital (material means of production) and their coordinated, purposeful use.

**Crisis management.** The purpose of studying the discipline is to determine the essence, trends, methods of crisis management; state regulation of crisis situations; study of possibilities and necessity of anti-crisis management; key factors of crisis management; study of development trends and practical capabilities of crisis management, its functions and directions; features of the use of basic management tools of the organization, the study of the influence of various factors on ensuring the effectiveness of the management system.

**Social management.** The purpose of studying the discipline is to provide students with systematic knowledge of the objective laws of the functioning of the social management system, as well as the acquisition of skills for their practical use; mastering the content of basic concepts, categories and terms of social management, studying the essence of the basic laws, patterns and functions of social management; determination of its principles, disclosure of methods, forms and mechanisms of management of various social phenomena and processes in modern society at the macro and micro levels.

**Asset and investment portfolio management.** The purpose of the discipline is to provide students with theoretical and methodological knowledge and practical skills in asset management and portfolio investment, investment market analysis, selection and analysis of investment instruments, to solve specific problems of enterprise asset management and formation and effective management of investment portfolio.

**Optional Block 2 «Management organization and business administration»**

**Fundamentals of cooperation.** During the study of the discipline the goal is to form in the student an understanding of cooperative identity, understanding of how the cooperative works and what its place is in modern society. The origins of cooperation and the influence of cooperative identity on the tasks of the manager are studied. The importance of cooperatives, cooperative principles and values are substantiated. The advantages of cooperatives in comparison with other forms of management are analyzed on the basis of consideration of existing tendencies in global and local social and economic systems.

**Marketing management.** The purpose of the discipline is to master students’ theoretical knowledge and practical skills in management, planning and organization of marketing activities of enterprises. The task of the discipline is to provide students with skills in marketing management, ensuring effective marketing activities in the market of
agro-industrial complex (AIC), forecasting trade, product range and quality management, pricing, promotion of goods on domestic and foreign food markets, distribution systems and sales of domestic producers.

**Management of agro-industrial enterprises.** The purpose of teaching the discipline “Management in agro-industrial complex” is to provide students with a comprehensive system of knowledge and skills in the management of production processes in agricultural production systems; conditions for ensuring the effectiveness of economic structures; diagnostics and design of management systems, adequate to the goals and objectives of a market economy. To give students theoretical knowledge and develop practical skills to develop and substantiate specific proposals related to current issues of agricultural management, organization of production at agricultural enterprises, building an effective collective and individual farm, land cadastre system and land management.

**Commercial law.** The purpose of the discipline is to form in students a system of legal knowledge, inextricably linked with management activities; acquisition of theoretical knowledge and practical skills related to the legal regulation of economic activity, the legal status of economic entities and public authorities.

**Accounting and analytical support of management activities.** The discipline involves the study of theoretical and practical aspects of the use of accounting and analytical activities in the justification, adoption and implementation of management decisions. When studying the discipline, the future specialist acquires knowledge of the methods of collecting and analyzing information on a comprehensive assessment of business results, justification and determination of internal reserves for the rational use of material, financial and labor resources.

**Management of motivation.** The purpose of studying the discipline - to expand and deepen knowledge of the basics of theory and practice of motivational management, to acquire skills and abilities to motivate different categories of employees in management practice. The subject of the discipline "motivational management" is to determine the place of motivation in the socio-psychological structure of the individual, the content of the motivational process; application of motivational theories in management practice; mastering different methods of motivating different categories of employees, managing the motivation of teams and groups.

**Optional Block 3 «Management of foreign activity»**

**International organizations.** The purpose of studying the discipline is to form in students a comprehensive and systematic knowledge about the activities and influence of international organizations on the practice of doing business in a globalized environment. The key objectives of the course include: to acquaint students with the prerequisites for the emergence of international organizations in the world; to find out the essence, functions and types of international organizations; substantiate the influence of international organizations on the results of business entities at the micro, meso and macro levels; to consider current trends in the development of international organizations in the face of new challenges and threats to the world economy.

**Marketing of foreign economic activity.** The discipline involves the study of the activities of subjects of foreign economic activity, aimed at studying the market, the impact on consumer demand in order to meet mutual needs through exchange, expanding sales of goods produced by them. The discipline provides for the study of the nature and forms of international marketing methods of research of economic, social, cultural, political and legal environment, international marketing activities; elaboration and mastering of the methodology of international market research, segmentation, selection of target markets;
models of research of the firm's entry into foreign markets, formation of an effective international marketing strategy.

**International transportation.** The purpose of the discipline - the formation of systematic theoretical knowledge and the acquisition of practical skills in the organization of international freight. The main objectives of the discipline - to show future professionals that the rational organization of international transport provides intensive use of rolling stock, timely delivery of goods from country to country, optimizes transport costs for exports and imports of goods; study by students of international normative-legal agreements, acts of bilateral agreements and norms of domestic legislation, which establish the order of regulation of transport activity on international transportations; acquaintance of students with the list and forms of transport document circulation on foreign economic operations; analysis and substantiation of competencies of state bodies for licensing and certification.

**Customs regulation of foreign economic transactions.** The purpose of studying the discipline is to provide students with knowledge on customs, necessary for future professionals to manage in the field of foreign economic activity. As a result of studying the discipline the student must know: theoretical and organizational principles of customs; the procedure for moving goods across the customs border of Ukraine, the procedure for accrual and collection of tax payments that arise when moving goods across the customs border of Ukraine; the procedure for customs clearance of goods; liability for violation of customs regulations. be able to: carry out customs clearance of goods; accrue taxes and fees that arise when moving goods across the customs border of Ukraine; calculate the amount of penalties for violation of customs regulations; to resolve debatable issues related to customs legislation, to critically comprehend it and to develop proposals for its improvement.

**Foreign economic commercial activity.** The purpose of studying the discipline is to provide students with knowledge of objective laws, real processes and specific features of the organization and technique of foreign trade operations, as well as skills of their practical application. The main objectives of the discipline are: the study of theoretical principles of foreign economic activity; substantiation of classification, content and specifics of foreign trade operations; elaboration of the structure and content of the foreign trade contract; study of the obligations of counterparties and the sequence of their actions in concluding international commercial agreements, taking into account international rules and regulations; acquaintance of students with features of the international commercial calculations at implementation of foreign economic operations; elaboration by students of methods of technical and economic substantiation of foreign economic operations and definition of features concerning each kind.

**International economic integration. European integration.** The purpose of teaching the discipline "International Economic Integration. European Integration "is to provide students with modern knowledge about international integration processes and European integration, which will allow to form a new type of managers who will be able to make the right decisions in the context of Ukraine's European integration into the European Union. The objectives of the discipline are: to teach students to determine the economic effects of international economic integration, to acquaint them with the stages of formation and development of the European Union, to provide in-depth knowledge of the Common Agricultural Policy and teach students to identify threats and opportunities from Ukraine's integration.
Optional Block 4 «Management of business»

**Implementation of a business idea.** The purpose of the discipline is to formulate a business idea with further detailing and formation of a strategic development plan. Acquisition of knowledge on the analysis of the viability of the project, the definition of management methods for the implementation of the idea, the definition of strategic initiative, the necessary resources, sources of funding, creating a business plan for a business idea.

**Management of small businesses.** The purpose of the discipline is to determine the essence and content of small business, features of planning in small business, to consider the technology of establishing the actual business, features of the simplified system of taxation of small businesses, labor relations, features of self-organization of small businesses.

**National and international programs and grants to support small business.** The purpose of the discipline is to determine the features of financing small business development through international programs and grants for small business development: European Small and Medium Business Support Program COSME; The Unlimit Ukraine project aims to support innovative entrepreneurs, programs from the European Bank for Reconstruction and Development: from attracting expert consultants to grants, the German-Ukrainian Fund provides microcredit and lending programs in priority industries, USAID - lending to Ukrainian farmers through credit unions and others.

**Legal regulation of business activity.** The purpose of the discipline is to master the scientific provisions and norms of national legislation on entrepreneurship in Ukraine, the formation of students’ practical skills and abilities to independently solve legal problems that arise in the process of doing business. Understanding of key processes of state regulation of business activity; elements and procedure for legitimation of business entities; legal regime of property of business entities, the procedure and grounds for termination of business entities; legal bases of legislative regulation of competition and monopoly; state control in the field of entrepreneurial activity; the analysis of legal responsibility for offenses in the field of business is given; implementation processes in the field of entrepreneurship within the association with the EU.

**Features of accounting for an individual entrepreneur.** Accounting and tax reporting, a simplified system of taxation of the peculiarities of accounting of natural persons-entrepreneurs, sole proprietors, business entities - SPD, private entrepreneurs - PE; groups of single tax payers, single tax rates; financial statements: accounting report on paid income on form 1-DF; accounting report on the single social contribution; personalization report to the pension fund; accounting report on vacancies at the Employment Center.

**Consulting services.** Features of consulting activities for managers, managers on a wide range of issues in the field of financial, commercial, legal, technological, technical, expert activities, assistance in the management system (management) in achieving the stated goals. Types of consulting services. Functions and features of consulting.

Optional Block 5 «Logistic management»

**Logistics infrastructure.** The purpose of the discipline is to determine the features of logistics infrastructure at the macro and macro levels, the study of logistics infrastructure as an effective tool for enterprise management. Logistics chains of production and product promotion as a means of saving material, raw materials, energy, financial, labor and other resources. Characterization of infrastructure as a mechanism that ensures organic unity and efficient operation of all material logistics flows. Elements, tasks, processes in the logistics infrastructure.
Information systems in logistics. The purpose of the discipline is to study the features of information technology as a decision support system. Expert systems, management programs and other tools that provide an opportunity for effective analysis of technical, economic and management processes; their modeling, preparation and submission of information for subsequent decision-making. Understanding the role of modern information technologies in improving the efficiency of cargo delivery due to the possibility of quick access to information about the subjects and objects of delivery. Features of information systems in logistics: Gonrad, Videotrans, STS, BRS, Espase Cat, ISCIS, GPS and others.

International transportation. The study of the discipline is aimed at mastering the following issues: TIR Convention as the legal basis of the customs transit system, the principles of the TIR Convention, the organizational structure of the TIR system, the principle of operation of the TIR system. Procedure for accession to the TIR Convention and its application. Functioning of the TIR Guarantee Network. Features of the organization of international transportations. The status of the customs carrier and the procedure for its acquisition.

Functional logistics. The purpose and objectives of the discipline - a detailed study of the basic functions of logistics, mastering the theoretical knowledge and practical skills of organizational, technological, technical and information support of the basic functions of logistics. The subject of the discipline is order management, inventory management, warehousing, transportation, customer service, supply, production, sales, distribution.

E-commerce. The purpose of the discipline is to form a system of theoretical and practical knowledge, skills in e-commerce, which will allow students and professionals to carry out their activities professionally in today's dynamic global environment. Advantages and disadvantages of e-commerce and e-business, types of e-commerce. e-commerce systems in the corporate sector: corporate representations on the Internet, virtual enterprises, Internet incubators and mobile commerce. Electronic payment systems, online advertising, prospects for e-commerce.

Warehouse logistics. The purpose of studying the discipline is to determine the features and functions of warehousing logistics. The role and functions of warehouses in logistics systems. Classification of compositions. The main tasks of warehousing logistics. Organization of warehousing logistics operations. Ways to optimize logistics processes in warehousing. Warehouse system, its elements.
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: Building № 15, Room 102

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

051 Economy

Educational-professional Program «Economic Cybernetics»

Guarantor of the program – Ph.D. in Economics, associate professor Nataliia Klymenko
Tel.: (044) 5278567 E-mail: nklymenko@nubip.edu.ua

Graduating department:

Economic Cybernetics
Tel.: (044) 5278567 E-mail: ciber_chair@nubip.edu.ua
Head of department – Ds.Sc. in Economics, professor, Andrii Skrypnyk

Educational-professional Program «Digital Economy»

Guarantor of the program – Dmytro Zherlitsyn, Dr.Sc in Economics
Tel.: (044) 527-85-67 E-mail: dzherlitsyn@nubip.edu.ua

Graduating department:

Economic Cybernetics
Tel.: (044) 5278567 E-mail: ciber_chair@nubip.edu.ua
Head of department – Ds.Sc. in Economics, professor, Andrii Skrypnyk

121 Software engineering

Educational-professional Program «Software engineering»

Guarantor of the program – Ph.D. in Engineering, associate professor Oleksandr Lialetskyi
Tel.: (044) 527-87-23 E-mail: a.lyaletski@nubip.edu.ua

Graduating department:

Computer Sciences
Tel.: (044) 527-87-23 E-mail: iusprog@nubip.edu.ua
Head of the department – Ph.D. in Engineering, associate professor Bella Golub
122 Computer science

Educational-professional Program «Computer science»

Guarantor of the program – Ph.D. in Engineering, associate professor Bella Golub
Tel.: (044) 527-87-23 E-mail: bellalg@nubip.edu.ua

Graduating department:

Computer Sciences
Tel.: (044) 527-87-23 E-mail: iusprog@nubip.edu.ua
Head of the department – Ph.D. in Engineering, associate professor Bella Golub

123 Computer engineering

Educational-professional Program «Computer engineering»

Guarantor of the program – Ph.D. in Engineering, associate professor Viktor Smolii
Tel.: (044) 527-81-99 E-mail: v-smolii@nubip.edu.ua

Graduating department:

Computer Systems and Networks
Tel.: (044) 527-81-99 E-mail: csn@it.nubip.edu.ua
Head of the department – Ds.Sc. in Engineering, professor Valerii Lakhno

125 Cybersecurity

Educational-professional Program «Cybersecurity»

Guarantor of the program – Ds.Sc. in Engineering, professor Valerii Lakhno
Tel.: (044) 527-81-99 E-mail: lva964@nubip.edu.ua

Graduating department:

Computer Systems and Networks
Tel.: (044) 527-81-99 E-mail: csn@it.nubip.edu.ua
Head of the department – Ds.Sc. in Engineering, professor Valerii Lakhno
Bachelor
Field of Knowledge "Social and behavioral sciences"
in Specialty "ECONOMICS"
Educational-professional program "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
Educational program "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
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 (Educational-professional or Educational-scientific) 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"

**Educational-professional program "Economic cybernetics"**

<table>
<thead>
<tr>
<th>Code</th>
<th>Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<tbody>
<tr>
<td>1</td>
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<td></td>
<td><strong>1. GENERAL TRAINING CYCLE</strong></td>
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<td></td>
<td><strong>Compulsory components EPP</strong></td>
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<tr>
<td>CC 1</td>
<td>Modern economics</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>CC 2</td>
<td>Macroeconomics</td>
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<tr>
<td>CC 3</td>
<td>Microeconomics</td>
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<tr>
<td>CC 4</td>
<td>Higher Mathematics</td>
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<td><strong>Total</strong></td>
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<td><strong>Compulsory components EPP by decision of the Academic Council of the University</strong></td>
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<tr>
<td>CCU 1</td>
<td>Modern Information Communications</td>
<td>5</td>
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<tr>
<td>CCU 2</td>
<td>Philosophy</td>
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<td>exam</td>
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<td>CCU 3</td>
<td>Business protocol and communication ethics</td>
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<td>CCU 4</td>
<td>Physical Education</td>
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<td>CCU 5</td>
<td>Foreign Language</td>
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<td>CCU 6</td>
<td>Legal personality culture</td>
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<td><strong>2. SPECIAL (PROFESSIONAL) TRAINING CYCLE</strong></td>
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<td><strong>Compulsory components EPP</strong></td>
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<tr>
<td>CC 5</td>
<td>Risk Theory</td>
<td>5</td>
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<tr>
<td>CC 6</td>
<td>Probability Theory and Mathematical Statistics</td>
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<tr>
<td>CC 7</td>
<td>Optimization methods and models</td>
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<tr>
<td>CC 8</td>
<td>Informatics</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>CC 9</td>
<td>Econometrics</td>
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<tr>
<td>CC 10</td>
<td>Business Economy</td>
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<tr>
<td>CC 11</td>
<td>Management</td>
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<td>CC 12</td>
<td>Marketing</td>
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<td>exam</td>
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<tr>
<td>CC 13</td>
<td>Finance, Money, and Credit</td>
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<td>CC 14</td>
<td>Accounting</td>
<td>5</td>
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<td>CC 15</td>
<td>Labor economics and social and labor relations</td>
<td>5</td>
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<tr>
<td>CC 16</td>
<td>International Economics</td>
<td>5</td>
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<td>CC 17</td>
<td>Statistics</td>
<td>5</td>
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<td>CC 18</td>
<td>Economic Cybernetics</td>
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<td>CC 19</td>
<td>Operations Research</td>
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<td>exam</td>
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<tr>
<td>CC 20</td>
<td>Modeling of the Economy</td>
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<tr>
<td>CC 21</td>
<td>Forecasting social and economic processes</td>
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<td>exam</td>
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<tr>
<td>CC 22</td>
<td>Decision-making systems</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>CC 23</td>
<td>Technology of Design and Administration of DB and DW</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 24</td>
<td>Project Management Informatization</td>
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<td>OB 2.3</td>
<td>Mathematical Models of the Agricultural Sector</td>
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</table>
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components


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

Compulsory components by decision of the Academic Council of the University


Modern Information Communications. Concepts of information and their main types, cloud services and their use in the modern information space, tools for communication, collaboration and cooperation, interaction in social networks, creation of text and graphic content, digital etiquette, and optimization of interaction processes. Methodology of research on social communications. Theory and history of social communications. Applied social and communication technologies. Public Communication in Management.

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components


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.


Management. Organization as an object of management, the essence, and peculiarities of the manager's activity, development of views on management. Principles and methods of management. Internal and external environment of the organization: Communication in management and the process of making managerial decisions. Planning of organization activity: organizational structure planning. Motivation of the work of the organization's employees, system, and process of control in the organization. Formation and development of the team, management, and leadership. The effectiveness of the organization's management system. New information and digital control technologies.


**Labor economics and social and labor relations.** Theoretical bases and practical methods of research of social-economic and industrial relations at the level of enterprises, organizations. Formation and functioning of social and labor relations based on social partnership, regulation of demand, and supply of labor in the labor market. Planning, analysis, reporting, and audit in the field of labor. Problems of integration of social and labor relations of Ukraine into the system of relations recognized by the International Labor Organization. Labor economics in the conditions of digital transformation.


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.


Optional components

Optional components by specialty

The Technology of creating software products. The basic concepts of modern programming. Linear, structural, procedural, and modular programming. Fundamentals of object-oriented modulation, design, and programming. Processing complex data structures, working with files. Designing graphical user interface. The main stages of the product life cycle.


**Mathematical models of the 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.

Technology of production, storage and processing of crop and livestock products. Status and main directions of crop production development in Ukraine; significance and biological features of field crops, species and varieties of agricultural plants, their use, distribution, and yield and productivity potential; modern technologies for growing high, ecologically clean crops in different soil and climatic zones of Ukraine; ways and means to improve the quality of agricultural products. Scientific and theoretical foundations of technological processes and evaluation of animal products. Effective implementation of the selection process in the desired direction and the organization of biologically sound and economically feasible technology for the production, processing, and storage of animal products. A system of practical methods of control of integral complex processes, based on the technology of production, processing, and storage of animal products are carried out. Principles of organization of technological flows of raw materials processing. Production of meat, fish and dairy products, eggs for various purposes.

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. ADO-interface to access data using high-level programming.


Information security risks. The concept and classification of risks associated with the use of information systems that support the mission and business functions. Sources of information security risks and methods of assessing their consequences. Methods of information security risk management.


WEB programming. Basic language constructs, markup techniques, and links to other WEB-development tools. Application of cascading CSS stylesheets in HTML. Description of the CSS syntax, options for placing the CSS description in the body of the document and beyond, CSS attributes for block and elemental markup elements. Methods of positioning markup elements using CSS. Programming basics on JavaScript. The logic of the development of JavaScript-code and the basic principles of its usage on World Wide Web pages. PHP programming language. Client-server technology as the center area of the PHP application.

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 tests. Comparison medium dependent and independent samples and non-parametric tests in SPSS. Univariate and


**The basic of blockchain technology.** Definition and basic concepts of blockchain technology. Advantages and disadvantages of the blockchain. Basic principles of work of blocks. Description of the blocks, their formation, and closure. Mechanisms that ensure the efficiency and reliability of blockchain. Proof of Work or PoW (performed work) and Proof of Stake or PoS (particle confirmation) algorithms. Software platforms for the implementation of blockchain technology. Ethereum platform. Smart contracts. Application areas of blockchain and specific projects for its implementation. Application of blockchain technology in Ukraine


**Web content management.** Content management web system. Principles and management of web content: automated templates; scaling; modernization of web standards: flow management. Cost of implementation and maintenance of web content management system.


**Decision-making Theory.** Basic principles of the theory of decision-making. The process of acceptance and implementation of managerial decisions. Expert methods and decision-making systems. Methods and decision-making systems in terms of certainty. Methods and decision-making systems in risk conditions. Applying the theory of utility to decision making. Methods and decision-making systems in a conflict situation.
Bachelor
Field of Knowledge "Social and behavioral sciences" in Specialty "ECONOMICS"
Educational-program «Digital Economy»

Form of Training: Licensed number of persons:
– Full-time 25
– Part-time –
Duration of Training 4 years
Credits ECTS 240
Language of Teaching Ukrainian, English
Qualification Bachelor of Economics

Concept of training
The program "Digital Economy" is aimed at forming a highly qualified specialist capable of solving complex and non-standard tasks and problems in the field of digital economy.

Students can be obtained in-depth theoretical knowledge and practical skills for effective implementation of activities by this program, which are providing in the following directions: digital information technology in the economy; computer modeling (simulation) and forecasting of socio-economic processes, which are based on information technology instruments; methods of economic and mathematical modeling in the digital transformation of the economy and social relations.

Practical training
Students study practical information technology in the economy tools, simulation, and forecasting of socio-economic processes methods, advance business intelligence, and data visualization instruments, which will enable to use of modern approaches for preparing and making managerial decisions in the digital economy.

Proposed Topics for Bachelor theses
1. The Agricultural Production and Rural Infrastructure: Digitalization Instruments.
2. Design and Implementation of "Smart" Agriculture Systems.
3. The Blockchain Technology in Agriculture Applications.

Academic rights of Graduates: graduates can apply for Master's Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.

Employment of Graduates
The graduates of the study program "Digital Economy" will be able to work in many areas of the economy, namely: positions: Administrative and Commercial Managers (Directors); Information and Communications Technology Services Managers (Directors); Scientist in the fields of Economics, Information Analytics, Data Mining, Data Science; Business and Administration Professionals; Statistical, Mathematical and Related Associate Professionals; Economists; Financial and Economic Security Professionals; Information Systems Security Professionals.
## Bachelor’s Program and Curriculum in Specialty «Economics»
### Educational-professional program «Digital Economy»

<table>
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<th>Code n/a</th>
<th>Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits</th>
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<td>1. GENERAL TRAINING CYCLE</td>
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<td>CCU 3 Business protocol and communication ethics</td>
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<td>CC 6 Probability Theory and Mathematical Statistics</td>
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<td>Cross-platform Programming in Python</td>
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**Optional components by Student’s Choice**

| OS 1 | Elective 1 | 3 exam |
| OS 2 | Elective 2 | 3 exam |
| **Total** | | **6** |

The total amount of Optional components: 60

3. OTHER TYPES OF TRAINING

| Graduate Practice | 5 |
| Educational Practice | 15 |

THE TOTAL AMOUNT OF EPP (without military training): 240

Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components


**Microeconomics.** Methodological principles of microeconomic analysis of market actors’ economic behavior. Universal tools for making sound economic decisions. Regularities of functioning of microsystems of individuals, households, enterprises, organizations. The main types of market structures, characteristics, and analysis. The perfect competition, pure monopoly, monopolistic competition, oligopoly. Influence of the general market equilibrium on the efficiency of the resource allocation in the economy, the reasons for the limited insufficiency of market regulation, the criteria for welfare, the need for intervention in the marketplace. Patterns of development of digital product markets.

**Higher mathematics.** Multiple sets and functions: operations with sets; display of sets; boundedness, exact limits of the numerical set; the principle of Cantor Embedded Segments; equivalent sets; countless and innumerable sets. The boundary theory: the boundary of the sequence; boundary function; partial, upper, and lower bounds of the function. Continuity of the function: local properties of continuous functions; properties of continuous functions on a segment. Differential calculus of functions of one variable: derivatives and differentials of arbitrary order, properties of differentiating functions; Taylor's formula; research on extremum and plotting functions. Indefinite integral: primitive and indefinite integral, their properties; replacement of variable and integration by parts; table integrals; methods of integration: rational functions.

**Compulsory components by decision of the Academic Council of the University**


**2. SPECIAL (PROFESSIONAL) TRAINING CYCLE**

**Compulsory components**


**Informatics.** Subject, methods, and tasks of the discipline. Theoretical fundamentals of informatics, systemic provision of information processes, software tools for working with structured documents, network technologies, Internet application in the economy. Basics of Web-design, organization of computer security and information security, software tools for work with databases and data warehouses, fundamentals of office programming, expert and training systems, prospects for the development of information technology.


**Management.** Organization as an object of management, the essence, and peculiarities of the manager's activity, development of views on management. Principles and methods of management. Internal and external environment of the organization: Communication in management and the process of making managerial decisions. Planning of organization activity: organizational structure planning. Motivation of the work of the organization's employees, system, and process of control in the organization. Formation and development of the team, management, and leadership. The effectiveness
of the organization’s management system. New information and digital control technologies.


**Labor economics and social and labor relations.** Theoretical bases and practical methods of research of social-economic and industrial relations at the level of enterprises, organizations. Formation and functioning of social and labor relations based on social partnership, regulation of demand, and supply of labor in the labor market. Planning, analysis, reporting, and audit in the field of labor. Problems of integration of social and labor relations of Ukraine into the system of relations recognized by the International Labor Organization. Labor economics in the conditions of digital transformation.


CURRICULA AND PROGRAMS OF BACHELOR DEGREE

Management of production systems. Methods of economic cybernetics in the field of nature management.


**Data analysis and visualization.** Basic principles of big data collection and processing. Stages of preliminary and thematic data processing. Grouping and clustering, data cleaning. New tools and information systems for big data processing. Methods of processing time series of spatial data. Application of modern mathematical-statistical and intellectual methods of data analysis. Creation of analytical materials (reports, presentations, infographic materials) for management decisions. Data visualization in the field of nature management.

**Technology of design and administration of DB and DW.** 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 in economy and management.** The essence of information systems and their importance in the management of modern organizations. The current state and trends of information technology development. Methodology for developing information systems, defining their quality and effectiveness. Basic principles of management of information resources and technologies. Formation of the information structure at the enterprise. Using Integrated Automated Information Systems in business. Determination of main characteristics of expert systems. Technologies of artificial intelligence in the management of organizations.
Optional components

Optional components by specialty

The Technology of creating software products. The basic concepts of modern programming. Linear, structural, procedural, and modular programming. Fundamentals of object-oriented modulation, design, and programming. Processing complex data structures, working with files. Designing graphical user interface. The main stages of the product life cycle.


Modern Information Communications. Concepts of information and their main types, cloud services and their use in the modern information space, tools for communication, collaboration and cooperation, interaction in social networks, creation of text and graphic content, digital etiquette, and optimization of interaction processes. Methodology of research on social communications. Theory and history of social communications. Applied social and communication technologies. Public Communication in Management.


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. ADO-interface to access data using high-level programming.

Information security risks. The concept and classification of risks associated with the use of information systems that support the mission and business functions. Sources of information security risks and methods of assessing their consequences. Methods of information security risk management.


Technology of production, storage and processing of crop and livestock products. Status and main directions of crop production development in Ukraine; significance and biological features of field crops, species and varieties of agricultural plants, their use, distribution, and yield and productivity potential; modern technologies for growing high, ecologically clean crops in different soil and climatic zones of Ukraine; ways and means to improve the quality of agricultural products. Scientific and theoretical foundations of technological processes and evaluation of animal products. Effective implementation of the selection process in the desired direction and the organization of biologically sound and economically feasible technology for the production, processing, and storage of animal products. A system of practical methods of control of integral complex processes, based on the technology of production, processing, and storage of animal products are carried out. Principles of organization of technological flows of raw materials processing. Production of meat, fish and dairy products, eggs for various purposes.


WEB programming. Basic language constructs, markup techniques, and links to other WEB-development tools. Application of cascading CSS stylesheets in HTML. Description of the CSS syntax, options for placing the CSS description in the body of the document and beyond, CSS attributes for block and elemental markup elements. Methods of positioning markup elements using CSS. Programming basics on JavaScript. The logic of the development of JavaScript-code and the basic principles of its usage on World Wide Web pages. PHP programming language. Client-server technology as the center area of the PHP application.


Fundamentals of blockchain technology. Definition and basic concepts of blockchain technology. Advantages and disadvantages of the blockchain. Basic principles of work of blocks. Description of the blocks, their formation, and closure. Mechanisms that ensure the efficiency and reliability of blockchain. Proof of Work or PoW (performed work) and Proof of Stake or PoS (particle confirmation) algorithms. Software platforms for the implementation of blockchain technology. Ethereum platform. Smart contracts. Application areas of blockchain and specific projects for its implementation. Application of blockchain technology in Ukraine.


IT project management. Theoretical foundations of project management in the field of IT. Classification and environment of TI projects. Information system life cycle. The structure of the IT project. Management of the TI project implementation process. TI project cost management. Quality management in the field of TI. Integrated functions of IT project management and their automation.


Decision-making Theory. Basic principles of the theory of decision-making. The process of acceptance and implementation of managerial decisions. Expert methods and decision-making systems. Methods and decision-making systems in terms of certainty. Methods and decision-making systems in risk conditions. Applying the theory of utility to decision making. Methods and decision-making systems in a conflict situation.

**Entrepreneurship in IT.** The leading indicators of resource potential and efficiency in the IT-sphere. Theoretical and methodological foundations of software economics. Types of costs for the creation, maintenance, implementation of software. Cost allocation in the life cycle of complex software systems. Pricing methods and their application for the formation of prices for products and services in the IT field. Methods for evaluating the effectiveness of the software, the profitability of software systems.
Bachelor
Field of Knowledge "Information Technology"
in Specialty "SOFTWARE ENGINEERING"
Educational-professional program «Software Engineering»

Form of Training: Licensed number of persons:
   – Full-time 50
   – Part-time 50
Duration of Training 4 years
Credits ECTS 240
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 theses
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 (Educational-professional or Educational-scientific) 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»

#### Educational-professional program «Software Engineering»

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<tr>
<td>1</td>
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<tr>
<td></td>
<td>1. GENERAL TRAINING CYCLE</td>
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<tr>
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<td>1.1. Compulsory components EPP</td>
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<tr>
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<tr>
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<td>Physical basics of electronics</td>
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<tr>
<td>CC 3</td>
<td>Linear algebra and analytic geometry</td>
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<td>CC 4</td>
<td>Probability Theory and Mathematical Statistics</td>
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<tr>
<td>CC 5</td>
<td>Computer discrete mathematics</td>
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<tr>
<td>CC 6</td>
<td>Discrete structures</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>CC 7</td>
<td>Philosophy</td>
<td>4</td>
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<tr>
<td>CC 8</td>
<td>Business protocol and communication ethics</td>
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<tr>
<td>CC 9</td>
<td>Foreign Language</td>
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<tr>
<td>CC 10</td>
<td>Legal culture of personality</td>
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<td>Physical Education</td>
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<td>1.3. Optional components EPP</td>
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<td>Optional subjects by Student’s Choice</td>
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<tr>
<td>OB 1.1</td>
<td>Information theory</td>
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<tr>
<td>OB 1.2</td>
<td>Statistical methods, theory flow of events</td>
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<td>OB 1.3</td>
<td>Nonclassical logic</td>
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<tr>
<td>OB 1.4</td>
<td>Management</td>
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<tr>
<td>OB 1.5</td>
<td>Economy and Business</td>
<td>5</td>
<td>exam</td>
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<td>OB 1.6</td>
<td>Ethnocultural studies</td>
<td>5</td>
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<tr>
<td>OB 1.7</td>
<td>History of Ukrainian statehood</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>OB 1.8</td>
<td>Equipment and technologies in agro-industrial complex</td>
<td>5</td>
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<tr>
<td>OB 1.9</td>
<td>Typical technological objects of agriculture production.</td>
<td>5</td>
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<tr>
<td>OB 1.10</td>
<td>Technology of production of crop and livestock production.</td>
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<td>Optional subjects by Student’s Choice</td>
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<td>Вибіркова 1</td>
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<tr>
<td>OS 2</td>
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<td>2. SPECIAL (PROFESSIONAL) TRAINING CYCLE</td>
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<tr>
<td>CC 11</td>
<td>Basics of Software Engineering</td>
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<tr>
<td>CC 12</td>
<td>Programming</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 13</td>
<td>Information Technology</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 14</td>
<td>Group dynamics and communication</td>
<td>4</td>
<td>exam</td>
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<tr>
<td>CC 15</td>
<td>Algorithms and Data Structures</td>
<td>4</td>
<td>exam</td>
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<tr>
<td>CC 16</td>
<td>The software requirements analysis software</td>
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<td>exam</td>
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<tr>
<td>CC 17</td>
<td>Databases</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>CC 18</td>
<td>Object-oriented programming</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 19</td>
<td>Technologies WEB programming</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 20</td>
<td>Organization of computer Networks</td>
<td>4</td>
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<tr>
<td>CC 21</td>
<td>Modeling and analysis of the subject area</td>
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<tr>
<td>CC 22</td>
<td>Operating Systems</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>CC 23</td>
<td>Security applications and data</td>
<td>4</td>
<td>exam</td>
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<tr>
<td>CC 24</td>
<td>Design Software</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>CC 25</td>
<td>Methods of object-oriented design of software systems</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>CC 26</td>
<td>Technologies database programming</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 27</td>
<td>Software Quality and Testing</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 28</td>
<td>Programming paradigms and formal software specification</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 29</td>
<td>Project Management Software</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CC 30</td>
<td>Architecture and design Software</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 31</td>
<td>Human-Computer Interaction</td>
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<tr>
<td>CC 32</td>
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<tr>
<td>CC 33</td>
<td>Project practicum</td>
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<tr>
<td>CC 34</td>
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<tr>
<td>CC 35</td>
<td>Work Practice</td>
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<tr>
<td>CC 36</td>
<td>Bachelor Thesis writing (Graduate thesis or Project)</td>
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### 2.2. Optional components EPP

#### Optional components by specialty

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Assessment Type</th>
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<tbody>
<tr>
<td>OB 1.11</td>
<td>The theory of algorithms</td>
<td>5</td>
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<tr>
<td>OB 1.12</td>
<td>Design and analysis of algorithms</td>
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<td>exam</td>
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<tr>
<td>OB 1.13</td>
<td>Functional programming</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>OB 1.14</td>
<td>Computer Architecture</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.15</td>
<td>Technical communication tools</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>OB 1.16</td>
<td>Programming microprocessors</td>
<td>5</td>
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<tr>
<td>OB 1.17</td>
<td>Software technology dot.net</td>
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<tr>
<td>OB 1.18</td>
<td>Cross-platform programming (Java)</td>
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<tr>
<td>OB 1.19</td>
<td>Cross-platform programming (Python)</td>
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<tr>
<td>OB 1.20</td>
<td>Service programming program</td>
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<tr>
<td>OB 1.21</td>
<td>Computer Graphics</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>OB 1.22</td>
<td>3D- modeling</td>
<td>5</td>
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<td>OB 1.23</td>
<td>Intellectual systems</td>
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<tr>
<td>OB 1.24</td>
<td>Neural networks</td>
<td>5</td>
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<tr>
<td>OB 1.25</td>
<td>The technology of pattern recognition</td>
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<tr>
<td>OB 1.26</td>
<td>Technologies distributed programming</td>
<td>5</td>
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<tr>
<td>OB 1.27</td>
<td>Principles of multitasking systems</td>
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<tr>
<td>OB 1.28</td>
<td>Real time operating system</td>
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<td>exam</td>
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<tr>
<td>OB 1.29</td>
<td>Programming of mobile devices</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>OB 1.30</td>
<td>Means of multimedia in information technologies.</td>
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<tr>
<td>OB 1.31</td>
<td>Professional Software Engineering Practice</td>
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<td>exam</td>
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<tr>
<td>OB 1.32</td>
<td>Computer networks administration</td>
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<td>exam</td>
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<tr>
<td>OB 1.33</td>
<td>Intellectual data analysis</td>
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<td>exam</td>
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<tr>
<td>OB 1.34</td>
<td>Economy software</td>
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<tr>
<td>OB 1.35</td>
<td>Entrepreneurship in the IT.</td>
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<td>exam</td>
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<tr>
<td>OB 1.36</td>
<td>Industry Environmental Monitoring</td>
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</table>

*The total amount of Compulsory components: 180
*The total amount of Optional components: 60

**THE TOTAL AMOUNT OF EPP (without military training): 240

Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

Physical basics of computer electronics. The principles of operation of electronic components of computer systems, problems of computer speed, new physical principles of creating memory elements are studied. Physical basics of signal transmission.


Compulsory components by decision of the Academic Council of the University


2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components


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.

CURRICULA AND PROGRAMS OF BACHELOR DEGREE


Databases. Information models and systems. Relational database. Languages queries to the database. Processing transactions. Distributed database.


Technologies WEB programming. The structure and principles WEB. Creating Web applications. Client and server scenarios.


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.


Programming paradigms and formal software specification. Defining the concept of programming paradigm as a set of ideas and concepts that define the style of writing programs (approach to programming), as a method of conceptualization that determines the organization of calculations and structuring the work performed by the computer. The concept of multiparadigm programming. Basic programming models. Approaches and techniques.

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.


Optional components

Optional components by Student's Choice

Information theory. Disclosure of the content and practice of information theory as a field of knowledge about the amount of information, signals, their time and frequency characteristics, coding of messages used in the processes of transformation, transmission, reception and storage of information about objects (processes). Formation of the basic provisions of information theory, system of knowledge and practical skills in quantitative evaluation of information, theory of deterministic and random signals, methods of coding and processes of message conversion during transmission and reception.


Nonclassical logic. Analysis of formal systems. The logic of calculus. Multifaceted logic. Logic of questions. The logic of estimates.


Ethnocultural studies. Features of the Ukrainian ethnos, basic concepts and definitions of ethnocultural studies, factors of ethnos formation, main cultural and historical world centers and regions, regularities of their functioning and development, proofs of national identity of the Ukrainian people.
CURRICULA AND PROGRAMS OF BACHELOR DEGREE

History of Ukrainian statehood. Development of national self-consciousness of future specialists, acquisition by specialists of skills of work with historical sources and literature, scientific analysis aimed at providing independent comprehension of patterns of historical development, development of skills to apply acquired knowledge of history in everyday life, for orientation in social and political life, and events.


Typical technological objects of agriculture production. Theoretical and practical training of students in research and modeling of typical technological and thermal processes and objects for their automation in various fields of agriculture based on the use of computer technology.

Technology of production of crop and livestock production. 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.

Optional components by specialty


Design and analysis of algorithms. Design, development and analysis of algorithms, evaluation of their efficiency and complexity, solvability and insolvability of algorithmic problems for adequate modeling of subject areas and creation of software and information systems. Requirements for tests and test data. Stages of the testing process.


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

**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 #.


**Cross-platform programming (Python).** Basic programming tools in Python. Simple and complex data types. Basic algorithmic constructions (conditions, cycle). Elements of functional and modular programming. The concept of recursion is defined. Working with files and directories. Opportunities for handling exceptional situations.


**3D modeling Basics of 3D modeling.** 3D modeling in AutoDesk Inventor, SolidWorks. Creation of 3D models of installations of various spheres of application.

**Intellectual systems.** Modeling knowledge in intelligent systems. Cash and logical systems of knowledge bases. Experts, ontological and many agent system.

**Neural networks.** Basic principles of construction of fuzzy logic systems, neural networks, fuzzy neural networks and systems of genetic algorithm. Using a specialized software environment for the synthesis of neural information systems


**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.


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.


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.

Computer networks administration. Construction and administration of computer networks hardware part. Types and applications of active and passive network equipment. Choosing equipment based on the needs of a specific network, developing of network structure for a given network technology. Assessment of network performance.

Intellectual data analysis. 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.


Entrepreneurship in the IT. Study of the functioning of entities operating in the global Internet space (business, business law, consumer protection, Internet technology, commodity science). 

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**

**Field of Knowledge "Information Technology"**

**in Specialty "COMPUTER SCIENCE"**

Educational-professional program «Computer Science»

<table>
<thead>
<tr>
<th>Form of Training:</th>
<th>Licensed number of persons:</th>
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<tbody>
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<td>– Full-time</td>
<td>50</td>
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<tr>
<td>– Part-time</td>
<td>50</td>
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Duration of Training: 4 years

Credits ECTS: 240

Language of Teaching: Ukrainian

Qualification: Bachelor of Computer Science

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**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 theses**

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 (Educational-professional or Educational-scientific) 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.
### Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)

<table>
<thead>
<tr>
<th>Code</th>
<th>Components</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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</thead>
<tbody>
<tr>
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#### 1. GENERAL TRAINING CYCLE

**Compulsory components EPP**

<table>
<thead>
<tr>
<th>Code</th>
<th>Components</th>
<th>Amount of credits ECTS</th>
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<tbody>
<tr>
<td>CC 1</td>
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<tr>
<td>CC 2</td>
<td>Physics</td>
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<td>CC 3</td>
<td>Philosophy</td>
<td>4</td>
<td>exam</td>
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<tr>
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<td>Numerical methods</td>
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<td>exam</td>
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<tr>
<td>CC 5</td>
<td>Discrete Mathematics</td>
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**Compulsory components EPP by decision of the Academic Council of the University**

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<th>Components</th>
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<td>Foreign Language</td>
<td>10</td>
<td>exam</td>
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<td>CCU 3</td>
<td>Legal culture of personality</td>
<td>5</td>
<td>exam</td>
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#### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components EPP**

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<tr>
<td>CC 8</td>
<td>Mathematical Methods of Operations Research</td>
<td>5</td>
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</tr>
<tr>
<td>CC 9</td>
<td>Programming</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 10</td>
<td>Information Technology</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 11</td>
<td>Computer circuitry and architecture of computers</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td>CC 12</td>
<td>Computer Graphics</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>CC 13</td>
<td>The theory of algorithms</td>
<td>5</td>
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<td>CC 14</td>
<td>Organization of databases and knowledge</td>
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<td>Object-oriented programming</td>
<td>5</td>
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<tr>
<td>CC 16</td>
<td>Web-technologies and Web-design</td>
<td>5</td>
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<td>CC 17</td>
<td>Technology distribution systems and parallel computing</td>
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<td>CC 18</td>
<td>Modeling systems</td>
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<td>exam</td>
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<td>CC 19</td>
<td>Operating Systems</td>
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<td>exam</td>
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<td>CC 20</td>
<td>Technology of software</td>
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<td>CC 21</td>
<td>System Analysis</td>
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<td>exam</td>
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<td>CC 22</td>
<td>Computer Networks</td>
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<td>exam</td>
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<td>CC 23</td>
<td>The theory of pattern recognition and classification in artificial intelligence systems</td>
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<td>CC 24</td>
<td>Methods and systems of artificial intelligence</td>
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<td>exam</td>
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<tr>
<td>CC 25</td>
<td>Design of Information Systems</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>CC 26</td>
<td>IT project management</td>
<td>5</td>
<td>exam</td>
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<td>CC 27</td>
<td>Technology development ICS</td>
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<tr>
<td>CC 28</td>
<td>Project Practice</td>
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<td>CC 29</td>
<td>Work Practice</td>
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<td>CC 30</td>
<td>Bachelor Thesis writing (Graduate thesis or Project)</td>
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<td><strong>The total amount of Compulsory components</strong></td>
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**Optional components EPP**

**Optional components by specialty**

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<tr>
<th>Code</th>
<th>Components</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<tbody>
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<tr>
<td>OB 1.2</td>
<td>Statistical methods, theory flows of events</td>
<td>5</td>
<td>exam</td>
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<tr>
<td>OB 1.3</td>
<td>Technical communication tools</td>
<td>5</td>
<td>exam</td>
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<td>OB 1.4</td>
<td>Management</td>
<td>5</td>
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<tr>
<td>OB 1.5</td>
<td>Economy and Business</td>
<td>5</td>
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</tr>
<tr>
<td>OB 1.6</td>
<td>Ethnocultural studies</td>
<td>5</td>
<td>exam</td>
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</table>
### CURRICULA AND PROGRAMS OF BACHELOR DEGREE

| OB 1.7 | History of Ukrainian statehood | 5 | exam |
| OB 1.8 | Equipment and technologies in agro-industrial complex | 5 | exam |
| OB 1.9 | Safety and life | 5 | exam |
| OB 1.10 | Robotics | 5 | exam |
| OB 1.11 | Fundamentals of GIS and remote sensing | 5 | exam |
| OB 1.12 | Intelligent Systems | 4 | exam |
| OB 1.13 | Decision theory | 4 | exam |
| OB 1.14 | Algorithms and Data Structures | 4 | exam |
| OB 1.15 | Microprocessor control system | 4 | exam |
| OB 1.16 | Technology Information Protection | 4 | exam |
| OB 1.17 | Cross-platform programming | 4 | exam |
| OB 1.18 | Forecasting methods | 4 | exam |
| OB 1.19 | Identification and modeling of technological objects | 4 | exam |
| OB 1.20 | Automated process control systems | 4 | exam |
| OB 1.21 | Intellectual data analysis based on artificial intelligence methods | 5 | exam |
| OB 1.22 | Means of multimedia in information technologies | 5 | exam |
| OB 1.23 | Programming Mobile Application | 5 | exam |
| OB 1.24 | Computer Design Technologies | 5 | exam |
| OB 1.25 | Modern management theory | 5 | exam |
| OB 1.26 | Computer system ecological and economic monitoring | 5 | exam |
| OB 1.27 | Software of computer-integrated technologies | 5 | exam |
| OB 1.28 | Industry Environmental Monitoring | 5 | exam |
| **Total** | 54 |

#### Optional components by Student’s Choice

| OS 1 | Elective 1 | 3 |
| OS 2 | Elective 2 | 3 |
| **Total** | 6 |

### 3. OTHER TYPES OF TRAINING

| Military training course | 29 |
| Project Practice | 10 |
| Work Practice | 5 |
| Bachelor Thesis writing (Graduate thesis or Project) | 5 |
| **THE TOTAL AMOUNT OF EPP (without military training)** | 240 |

### Annotations of Components in the curriculum

#### 1. GENERAL TRAINING CYCLE

**Compulsory components**


**Curricula and Programs of Bachelor Degree**


**Ecological.** Optimization of relationships between humans, on the one hand, individual species and populations, ecosystems - on the other. Research the habitat of living beings. Ways to limit the consumption of biosphere resources to meet the needs of human economic activity.

**Compulsory components by decision of the Academic Council of the University**


**2. SPECIAL (PROFESSIONAL) TRAINING CYCLE**

**Compulsory components**


**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.
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.


Organization of databases and knowledge. 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.


computer systems conveyor, matrix, multiprocessor. Construction of cluster systems. Means of support of parallel calculations PVM, MRI. Models for remote calling RPC procedures and remote application of RMI methods.


**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.


**Methods and systems of artificial intelligence.** Fundamental concepts of artificial intelligence. Methods of designing artificial intelligence systems and designing intelligent information control systems and technical automated systems, methods and models of knowledge representation in artificial intelligence systems.

**Design of Information Systems.** 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

Optional components

Optional components by specialty

Information theory. Disclosure of the content and practice of information theory as a field of knowledge about the amount of information, signals, their time and frequency characteristics, coding of messages used in the processes of transformation, transmission, reception and storage of information about objects (processes). Formation of the basic provisions of information theory, system of knowledge and practical skills in quantitative evaluation of information, theory of deterministic and random signals, methods of coding and processes of message conversion during transmission and reception.


Ethnocultural studies. Features of the Ukrainian ethnus, basic concepts and definitions of ethnocultural studies, factors of ethnos formation, main cultural and historical world centers and regions, regularities of their functioning and development, proofs of national identity of the Ukrainian people.

History of Ukrainian statehood. Development of national self-consciousness of future specialists, acquisition by specialists of skills of work with historical sources and literature, scientific analysis aimed at providing independent comprehension of patterns of
historical development, development of skills to apply acquired knowledge of history in
everyday life, for orientation in social and political life, and events.

**Equipment and technologies in agro-industrial complex.** Use of machinery in
agriculture. Agricultural bases responsible for the basing, use and repair of agricultural
machinery, as well as for keeping pets, harvesting fodder and market sales on other
smaller agricultural sites. Features of development and implementation of innovative agro-
engineering technologies in agro-industrial complex. Innovative technologies and new
generation equipment for crop production. Innovative technologies and new generation
equipment for livestock production. Modern problems and perspective solutions in
resource-saving and ecological safety of transport.

**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.

**Robotics.** Possibilities of different kinematic schemes of robots, functioning of
electric drives, possibilities of different types of computer systems, principles of different
types of sensors of robotic complexes, principles of functioning of control system, control
algorithms for the simplest wheel robot, control algorithms using ready libraries,
adjustment of implemented algorithms quality assessment of implemented algorithms.

**Fundamentals of GIS and remote sensing.** The methods of remote sensing of the
Earth are based on the registration and further interpretation of the reflected solar radiation
from the soil surface, vegetation, water and other objects. The removal of recording
devices in the air or near-Earth space allows to obtain a much wider coverage of the
territory compared to ground-based research methods. With remote sensing, the spectral
range of the survey, spatial accuracy, radiometric accuracy, spatial coverage, efficiency
and repeatability of the survey, data cost have a significant impact on the quality and
applicability of the obtained data.

**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.

**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.

**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.

**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 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
protocol. Digital Signatures. Use passwords and access control mechanisms. Questions
Security and Firewalls

Forecasting methods. The discipline is aimed at applying the skills of statistical and regression modeling in order to obtain prognostic models in various applied problems of pyrode use. During the course, students will be introduced to approaches to forecasting natural disasters (floods, floods, droughts) and forecasting crop yields. On applied tasks, students will be able to improve their skills in data analysis and programming.

Identification and modeling of technological objects. Theoretical and practical training of students, obtaining knowledge on the development and research of mathematical models of agricultural production based on the use of computer technology, research of mathematical model using mathematical package MathCad with the study of possible control channels for this production, use of technological objects to solve feed issues bases, fodder preparation, response of biological objects to external factors, intensification of the branch.

Automated process control systems. Basic concepts, terminology and definitions in the field of automated systems and their varieties; study of the classification, composition and structure of the process control system, development of the principles of interaction and interconnection of the object, complex of technical means and man in the ACS, study of methods and means of collecting, transmitting and displaying technological, biological and economic information in the process control system formulation of tasks of automatic control system in APV, acquaintance with principles of design and operation of ACS by objects of agrarian and industrial complex.

Intellectual data analysis based on artificial intelligence methods. The concept of artificial intelligence. The concept of smart and intelligent problem IS FROM. Methods of 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.


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;

Computer Design Technologies. 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.


**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
Field of Knowledge «Informatics and Computers»
in specialty «COMPUTER ENGINEERING»
Educational-professional program «Computer Engineering»

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

Students training in "Computer Engineering" allows graduates in the field of programming and software independently develop and use system and application software, including the development and use of information systems, databases, computer-aided design systems, interactive systems, programs for specialized embedded systems. In the hardware field, bachelor's in computer engineering can develop computer systems at all levels - components, controllers, universal and specialized computer systems, local, global and virtual corporate computer networks and carry out their adjustment and monitoring.

Practical training

Practical training of students in this area is aimed at basic methods and technologies mastering for computer systems hardware and software development, according to global trends in network technologies and the Internet of Things and university’s agricultural orientation.

Proposed Topics for Bachelor theses
1. Specialized computer system development that functionally focused on specific problems solving in a particular subject area.
2. IoT systems devices design.
3. Automated information systems hardware and software components Development;
4. Hardware and software Development for computer systems information defense.
5. System software development.

Academic rights of Graduates: graduates can apply for Master’s Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.

Employment of Graduates

Bachelors of Computer Engineering can work at specialist positions in information technology, programming, system administration, computer network administration, in engineer’s role for computer systems and their components design and exploitation.
Curricula and Programs of Bachelor Degree

Bachelor’s Program and Curriculum in Specialty «Computer Engineering»

Educational-professional program «Computer Engineering»

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)</th>
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<th>The final control</th>
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<td>CC 1</td>
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<td>11</td>
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<tr>
<td>CC 2</td>
<td>Computer electronics physical basics</td>
<td>6</td>
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<tr>
<td>CC 3</td>
<td>Programming</td>
<td>9</td>
<td>exam</td>
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<tr>
<td>CC 4</td>
<td>Probability Theory and Mathematical Statistics</td>
<td>4</td>
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<tr>
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<tr>
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<td>CC 7</td>
<td>Foreign Language</td>
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<td>CC 8</td>
<td>Business protocol and communication ethics</td>
<td>5</td>
<td>exam</td>
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<td>CC 9</td>
<td>Legal culture of personality</td>
<td>3</td>
<td>test</td>
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<td>CC 10</td>
<td>Philosophy</td>
<td>3</td>
<td>exam</td>
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<td>CC 11</td>
<td>Economics and business</td>
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<td>CC 12</td>
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<td>2. SPECIAL (PROFESSIONAL) TRAINING CYCLE</td>
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<tr>
<td>CC 13</td>
<td>Computer Logic</td>
<td>9</td>
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<tr>
<td>CC 14</td>
<td>Information and coding theory</td>
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<td>exam</td>
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<td>5</td>
<td>exam</td>
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<td>CC 17</td>
<td>The databases organization</td>
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<td>CC 18</td>
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<td>Computer Architecture</td>
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<td>Digital systems design technologies</td>
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<td>Parallel and distributed computing</td>
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<td>System programming</td>
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<td>CC 26</td>
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<td>Technical communication tools</td>
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<td>Practical training in digital device design</td>
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<td>CC 32</td>
<td>Internship</td>
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Optional components EPP

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<td>OS 1.2 Equipment and technologies in agro-industrial complex</td>
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<td>OS 3.1 Software engineering</td>
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<td>OS 3.2 Computer Graphics</td>
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<td>OS 3.3</td>
<td>Means of multimedia in information technologies (cs)</td>
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<td>Human interaction interfaces</td>
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<td>Cross-platform programming</td>
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<td>OS 4.2</td>
<td>Specialized computers</td>
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<td>OS 4.3</td>
<td>Microcontroller Systems</td>
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<td>WEB technology and WEB design</td>
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<td>OS 5.1</td>
<td>The theory of pattern recognition</td>
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<td>OS 5.2</td>
<td>Modern tools for multithreading implementation</td>
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<td>OS 5.3</td>
<td>WEB programming basics</td>
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<td>OS 5.4</td>
<td>Modern server systems</td>
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<td>OS 6.1</td>
<td>Devices for communication with object</td>
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<td>OS 7.2</td>
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<td>OS 7.3</td>
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<td>Computer networks administration</td>
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**Optional components by Student’s Choice**

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<td>The total amount of Optional components</td>
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**The total amount of EPP (without military training)** 240

**Annotations of Components in the curriculum**

1. **GENERAL TRAINING CYCLE**

**Compulsory components**


**Computer electronics physical basics.** The principles of computer systems electronic components operation, problems of computer speed, new physical principles for memory elements creating and signal transmission theory are presented.


**Compulsory components by decision of the Academic Council of the University**


**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.

### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components**


**Information and coding theory.** Fundamental methods of information theory and coding, which are widely used in modern computer information technology in various fields of human activity, are studied. Basic methods of estimating the amount of information, modern coding algorithms for message sources and data transmission over communication channels, the principles of noise-tolerant codes construction and their use in modern computer information systems.


**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.


of program developer environment. Development of graphical user interfaces. Basic event-driven programming.


**Optional components**

**Optional components by specialty**


**Equipment and technologies in agro-industrial complex.** Use of machinery in agriculture. Agricultural bases responsible for the basing, use and repair of agricultural machinery, as well as for keeping pets, harvesting fodder and market sales on other smaller agricultural sites. Features of development and implementation of innovative agro-engineering technologies in agro-industrial complex. Innovative technologies and new generation equipment for livestock production. Modern problems and perspective solutions in resource-saving and ecological safety of transport.

**Life safety and labor protection basics.** 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


Curriculum and Programs of Bachelor Degree


**Human interaction interfaces.** The discipline studies the issues of ergonomic construction of interfaces of interactive human-machine systems and physical and psychological factors influence for their design process.


**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.


**Modern tools for multithreading implementation.** As an outcome of studying the discipline, the students will be able to create highly efficient multi-threaded programs designed to run on modern software and hardware platforms. The study of the discipline requires deep basic knowledge in the field of systems programming, discrete mathematics, mathematical logic, graph theory, dynamic data structures, the theory of algorithms. When studying the discipline, students will acquire the skills to create multi-threaded applications using current techniques, tools and approaches. Students will learn to effectively use the computing power of modern multi-core platforms.

**WEB programming basics.** The discipline highlights the data and information presentation in global networks, that based on markup languages. These processes are analyzed from organization of network services and interfaces point of view. Features and tools for working with the xml language are considered.
Modern server systems. While studying the discipline, students get acquainted with Windows and Linux server operating systems. Configure basic services by type such as DHCP, DNS, AD, TFTP and SYSLog and others. When studying the discipline, students will acquire skills to run web servers and ensure their security. Setting up a simple firewall and creating login rules for various users. By studying the discipline, students will acquire skills in server administration, automation and the process of integration into large cluster systems. Get acquainted with the stages of selection, launch, installation of the OS.


Intellectual systems. Modeling knowledge in intelligent systems. Cash and logical systems of knowledge bases. Experts, ontological and many agent systems.


Computer networks administration. Construction and administration of computer networks hardware part. Types and applications of active and passive network equipment. Choosing equipment based on the needs of a specific network, developing of network structure for a given network technology. Assessment of network performance.

Data-storage systems and Virtualization. While studying the discipline, students will learn what virtualization is, why it is needed, what hardware resources are needed for deployment to implement it. Get acquainted with hardware hypervisors such as: ESXi, VMWARE, PROXMOX. When studying the discipline, students will acquire the skills to start creating virtual machines, connecting them to each other. Deployment of cluster resources, transfer of large amounts of data to cloud resources. Gain skills to implement add-ons to automate the work of the system administrator.
Bachelor
Field of Knowledge "Information Technologies"
in Specialty "CYBERSECURITY"
Educational-professional program «Cybersecurity»

Form of Training:  Licensed number of persons:
  – Full-time  50
  – Part-time  50
Duration of Training  4 years
Credits ECTS  240
Language of Teaching  Ukrainian
Qualification  Information security officer

Concept of training

The educational process of specialists training in the sphere of cybersecurity allows future professional to be grown up with the skill to be able to dynamically combine skills, knowledge, communicational skills and abilities with the individual work with responsibility during resolving the tasks and answering the problem questions in the sphere of informational security; forming the profound theoretical and practical background in the form of skills and knowledge to establish and grant the informational security on the objects of informational activities. The objects of the professional activities of graduates are the informatization objects, including computational, automated, telecommunication, informational, info-analytical, info-telecommunication systems, informational resources and technologies; technologies for granting the informational security; processes for control of informational and/or cybersecurity of objects to be protected.

Practical training

Practical training of students in the sphere of named specialty is aimed at mastering the basic methods and technologies for information security computer systems hardware and software developing.

Proposed Topics for Bachelor theses

1. Development and organization of specialized computer system informational security facilities, functionally aimed at domain-specific tasks resolving.
2. Designing of systems for monitoring the unauthorized activities taking place in computer systems.
3. Development of system software for granting the information security in computer systems.
4. Development of hardware and software facilities for information security in computer systems.
5. Development of the facilities for fostering computer networks safety.

Academic rights of Graduates: graduates can apply for Master Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 of Section 1.3 of this Prospect.
Employment of Graduates

In accordance with the current version of the National Classifier of Ukraine: the Occupational Classifier (DK 003: 2010) and the International Standard Classification of Occupations 2008 (ISCO-08), a graduate with the "Information Security Officer" professional qualification can be employed at enterprises and institutions of any ownership form, which work in the sphere of IT technologies, information-communication and telecommunication sectors.

Cybersecurity officers may hold the following primary positions: Software Engineer / QA Engineer; administrator of computer systems and networks; administrator of information and cybersecurity; safety auditor of information and communication systems; developer of information security facilities; engineer of information technical security service, etc.
# Bachelor`s Program and Curriculum
## in Specialty «Cybersecurity»
### Educational-professional program «Cybersecurity»

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<thead>
<tr>
<th>Code</th>
<th>Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
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<td></td>
<td>CC 1 Higher mathematics</td>
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<td>CC 3 Programming</td>
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<td>CC 4 Information security risks theory</td>
<td>4</td>
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<td>CC 5 National information security</td>
<td>8</td>
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<td>CC 6 Information and coding theory</td>
<td>4</td>
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<td>Compulsory components EPP by decision of the Academic Council of the University</td>
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<tr>
<td></td>
<td>CCU 1 Legal culture of personality</td>
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<td>CCU 2 Business protocol and ethics of communication</td>
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<td>CCU 3 Foreign language</td>
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<td>CCU 4 Philosophy</td>
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<td>CCU 5 Economics and business</td>
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<td>CCU 6 Information technologies</td>
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<td>CCU 7 Physical training</td>
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2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

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<td>CC 8 Methods and means of information security</td>
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<td>CC 9 Integrated information security systems</td>
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<td>CC 10 Organizational support for information security</td>
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<td>CC 11 Component base and circuitry in information security systems</td>
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<td>CC 13 Information security in information and communication systems</td>
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<td>CC 14 Cryptographic and steganographic information security fundamentals</td>
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<td>CC 15 System programming</td>
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<td>CC 16 Computer networks</td>
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<td>CC 17 Wireless, mobile and cloud technologies security</td>
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<td>CC 18 Information security in computer systems</td>
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<td>CC 21 Safe programming technologies</td>
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<td>CC 23 Cybersecurity system design educational training</td>
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<td>CC 24 Practical training</td>
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The total amount of Compulsory components | 180 |

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<td>Technics and technologies in AIC</td>
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<td>Typical technological objects of agricultural production</td>
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<td>Life safety and labor protection basics</td>
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<td>5</td>
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</table>
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components


Physical fundamentals of computer electronics. The following topics are studied: computer performance problems, novel physical principles of memory elements creation. The following approach is analyzed: the computing machine is considered as the layered hierarchical structure, where each layer is devoted to certain function.


Information security risks theory. Violation of the basic properties of information can be a serious threat to organizations at present. It is harder to control the information and it is exposed to a large number of threats and vulnerabilities, including computer fraud, espionage, sabotage, vandalism, fires or floods. Information resources, like material ones, are also characterized with quality and quantity, cost and price. Risk assessment is an important part of any information security process. It is used to determine the extent of threats to the security of information and the likelihood of a threat. The goal of "Information security risks theory" discipline is to study the process of risk assessment and assess the probability and potential damage from the identified threats, as well as develop the models for assessing the individual risk level of each information asset.

National information security. Information security is one of the essential components of the national security of the country. The discipline provides the methods, techniques, means, as well as the channels for the implementation of threats to national interests at the information level. The basic methods and means of timely detection, prevention and neutralization of threats for state information security are also studied. The goal of studying the "National information security" discipline is the formation of knowledge about the theoretical foundations of information security, especially the provision of information security of the state, the rules of the relation of information to state secrets, confidential information that is the property of the state, non-state confidential and open information that needs protection, ways of building information security systems.

Information and coding theory. Fundamental methods of information theory and coding, which are widely used in modern computer information technology in various fields of human activity, are studied. Basic methods of estimating the amount of information, modern coding algorithms for message sources and data transmission over communication channels, the principles of noise-tolerant codes construction and their use in modern computer information systems.

Compulsory components by decision of the Academic Council of the University

Information technologies. The subject, methods and tasks of the discipline, theoretical fundamentals of informatics, system software for information processes, software tools for work with structured documents, network technologies, Internet usage in the economy, Web design fundamentals, organization of computer and information security, software tools for work with databases and data stores, office programming fundamentals, expert and training systems, information technology development prospects.

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

Computer logic – part 1. In the first part of "Computer Logic" course the following topics are considered: Key points and definitions of computer logic. Information basics of computer technics, for the tasks of information security and cybersecurity in particular. Switching functions algebra. Methods for switching functions minimization. Combinational schemes synthesis in various elemental bases. Fundamentals of the theory of digital automata with memory.


Methods and means of information security. Getting started with the main physical principles, methods and means of information security and search for the equipment devoted to information obtaining. Study the methods and means of unauthorized obtaining of information, as well as the creation of counteraction to the protection of information through the channels where it is possible to lose the information.

Integrated information security systems. Study of organizational and engineering-technical activities aimed at protecting information from disclosure, leakage and unauthorized access. Introduction to basic organizational activities for integrated information security systems, as well as engineering and technical activities. Learning the functional capabilities and methods of building integrated information security systems, mastering the necessary techniques and practical skills when configuring modern network equipment.

Organizational support for information security. The role of organizational security of information in the system of security measures is determined by the timeliness and correctness of the management decisions taken, methods and techniques of information security on the basis of valid normative and methodological documents. Organizational methods of security include organizational, technical and legal activities, as well as include the following principles of information security: a scientific approach to the organization of information security; security planning; management of the security system; continuity of the information security process; the minimum sufficiency of providing the security; systematic approach to the organization and design of systems and methods of information security; integrated approach to information security organization; compliance with the level of protection of the value of information; security flexibility; multi-zonal security, which implies the placement of information sources in the areas with a controlled level of security; restriction of the number of persons that are allowed to get the access to secure information; personal responsibility of personnel for the maintenance of trusted information.

**Component base and circuitry in information security systems - part 2.** The following topics are considered: Variations and implementation of information transmission channels, protected channels in particular. Schematics of information security systems on Large-scale integrated circuits and Very large-scale integrated circuits.

**Computer systems.** The discipline is devoted to consideration of the following issues: Structure, principles of creation and classification of computer systems (COP). Subject, tasks and methods of the theory of the COP. Computational processes in the COP and their models. Planning work in the COP. Metrics of the CS: productivity, efficiency, reliability. The structural organization of the COP of different generations. Classification of parallel COP. COP with a fixed tangle system. COP with reconfigured suture system. Organization of memory in the COP. Organization of I / O data in the COP. Organization of data transmission in the COP. KS class SISD. KS class SIMD: matrix, vector, associative. MISD Class Console: Conveyor Computer Systems. KI class MIMD: multiprocessor, multicomputer, systems with heterogeneous access to RAM, cluster systems, GRID systems. Computer systems with unconventional architecture. Interfaces of the COP. Basic concepts of fault-tolerance COP. Structural aspects of building a fault-tolerant COP. The place of computer systems in integrated design, production and operation systems. Communication of computer systems with other automated systems. The structure of engineering analysis systems for the protection of information and cyber security. Types of computer systems to protect information and provide cyber security of objects of informatization.

**Information security in information and communication systems.** The discipline is the theoretical basis of the amount of knowledge and skills that form the profile of a specialist in the field of cybersecurity. On the basis of acquired knowledge and skills, a specialist will be able to solve professional problems based on modern technologies and methods of information security in modern information and communication systems and networks. The purpose of teaching the discipline is to disclose the modern methods of information security in computer systems and networks and familiarization with the peculiarities of hardware and software implementations of these methods. The discipline involves the study of the following constituents: types of information threats in computer systems and networks; basic security protocols; principles of security systems operation; main means of software and hardware protection of information in computer systems and networks; methods of unauthorized information retrieval and deliberate damage of information and means to counter these attempts.

**Cryptographic and steganographic information security fundamentals.** The discipline introduces students to classical and modern symmetric cryptographic systems, open source cryptography, various cryptographic protocols and their applications, as well as new promising directions for the development of cryptology. The discipline aims to give students the knowledge in the field of theoretical cryptography and steganography. Discipline introduces the main principles of the work of cryptographers, mathematical models of information sources. Specific types of encryption algorithms and cryptographic transformations are considered according to their classification into classical schemes, streaming systems, block encryption systems, and public key information security systems. Much attention is paid to cryptographic protocols and their application in the
System programming - part 1. The goal of the first part of "System programming" course is to provide students with the knowledge and skills of working with the Assembler language, as a mean of effective programming, study the architecture and the system of commands of the base processor, subroutines creation in the Assembler language.

System programming - part 2. The purpose of the second part of the discipline "System programming" is the formation of students knowledge and skills regarding the means of constructing system programs, programming system programs using C and C++ languages. In the study of discipline covered, in particular, the following issues: technologies for the development of multimodal system programs, the use of software libraries, processing of data structures in system programs. The issue of optimizing the code of system software products for the tasks of information security and cybersecurity.

Computer networks - part 1. The purpose of the first part of the discipline "Computer Networks" is the formation of students knowledge and basic skills related to the theoretical and practical aspects, as well as the methodology of design, construction and use of computer networks.

Computer networks - part 2. The purpose of the second part of the discipline "Computer Networks" is to study students of the architecture of modern computer networks, software for network configuration, acquiring practical skills for analyzing the security of networks from unauthorized access to information.

Wireless, mobile and cloud technologies security. Modern information and communication technologies foresee the use of virtualization technologies for server systems technologies, communication tools for distributed computing, and the development of software for hardware solutions for data centers. To manage cybersecurity of heterogeneous computing resources remotely, software and hardware solutions are required for secure implementation of virtualization systems as well as remote service functions, which in general creates opportunities for the organization and use of wireless, mobile and cloud computing technologies. The purpose of teaching discipline is the formation of theoretical knowledge and acquisition of practical skills in the use of distributed distributed computing technologies, virtualization of server systems, the design of secure corporate computing systems with the use of wireless, mobile and cloud computing.

Information security in computer systems. The discipline deals with the main principles and decisions in the design and implementation of information security and cyber security systems in specialized computer and robotic technical systems and networks. The purpose of the discipline is to provide students with the necessary knowledge about cybernetic threats to specialized computer and robotic technical systems and networks. Introduction to the main methods, principles, algorithms of information security in computer systems, taking into account the current state and forecast of the development of methods, systems and means of implementation of threats and cyber attacks on the part of potential violators. During the study of the discipline students are expected to have certain knowledge and skills in the theory and practice of protecting information and information security in specialized computer and robot technical systems and networks.

Cryptanalysis fundamentals. The discipline is aimed at providing the students with the knowledge in the field of theoretical cryptography and cryptanalysis. The discipline introduces the main principles of the work of crypto analysts, the mathematical models of the information sources, theoretical and practical secrecy concepts, as well as practical methods of cryptanalyst work.

Information technical protection fundamentals. The discipline helps to prepare future professionals for the effective use of modern information technology in the process of data security and digital information protection tasks solving. Goal of the discipline:
acquisition of knowledge, skills and abilities on the basics of information security and acquisition of skills of their practical application when working with modern software; techniques of building the information security in information systems; modern means of human interaction with hardware and software; basics of crypto data protection; techniques of important information protection from unauthorized access.


**Optional components**

**Optional components by specialty**


**Life safety and labor protection basics.** 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.

**Internet of Things fundamentals.** The purpose of studying the discipline is to master the basics of building industrial solutions according to IoT methodologies. The program of the discipline provides for the in-depth knowledge of network technologies in terms of their application in the field of the Internet of Things. Students in the process of studying the course material gain active skills in using a wide range of hardware and software tools for collecting, transmitting and analyzing data from various sensors and generating control signals for actuators.

**Discrete mathematics.** The purpose of the discipline is to master students' mathematical language and fundamental concepts (and their basic properties and practical skills of use) of some of the most traditional sections of discrete mathematics, to promote the development of logical and analytical thinking of students in cyber security.

**Information and cybersecurity standards.** Current standards of information and cybersecurity of Ukraine, the EU, the USA, etc., are studied.

**Fundamentals of forecasting and modeling in social domain.** Studied: Subject field of the discipline. General concepts and approaches to understanding the basic principles of social modeling and forecasting. Modern methodological and methodical approaches to the analysis of forecasting processes in the social sphere. Features of utilization of applied methods and social technologies in the system of socio-engineering
activity. Criteria, indicators and social indicators for the implementation of modern research in the forecast direction.

Applied aspects of information security systems building. The purpose of studying the discipline is to form knowledge about the basic methods and technologies of automated modeling, designing and research of information security systems. The technologies for designing computerized cybersecurity systems and information security for real objects of protection are studied. Object-oriented design and construction of cybersecurity and information security systems, components and components of P-CAD, examples of synthesis of information security systems in P-CAD are studied.

Wireless and mobile networks security and audit. The purpose of the discipline is to form knowledge about the basic methods of auditing the means of protection of information resources, the principles of multilevel wireless and mobile networks integrated with public access networks, such as the Internet.

Parallel and distributed computing. The following positions are studied: theoretical bases of organization of parallel and distributed computational processes, parallelization of algorithms, transformation of sequential programs into parallel ones; problems of organization of parallel and distributed computing.

Access control. Modern information and computer systems are vulnerable to a number of network threats that may be the result of unauthorized access, as well as the disclosure or modification of information. In order to protect relevant information resources from cyber threats, it is necessary to apply targeted access control measures. This discipline is devoted to the study and mastering of the guiding and general principles for the design, implementation, support and improvement of the access control and information protection system. Students acquire practical skills in planning and developing an effective access control system that provides management and control of access, development and maintenance of hardware-software systems and networks; management of business continuity and optimization of management processes. Students learn to identify the specific security risks that threaten the resources of the organization and for which vulnerability assessment, likelihood of its occurrence and potential impact; develop security policy; to organize the management of assets and resources in order to increase the efficiency of the operation and security of computer systems.

System analysis. Aim: to develop students’ skills in system thinking and prepare them for solving practical problems of analysis and synthesis of information security, information and (or) cybersecurity systems. Objective: to study the methodology of the system approach, widely used in solving global and special problems such as monitoring, management of technological processes, information systems, technical diagnostics, etc.

Computer electronics. Prepares future professionals to understand the electronic processes occurring in computer hardware during the processing of electrical signals and how these processes are reflected in the quality of information signal processing. The program provides a comprehensive study of electronic means of processing analog and digital signals, which are the basis for the presentation of information in computer hardware.

Project management of information security systems development. Aimed to provide students with knowledge about the theoretical foundations of project management and the basics of applying their acquired knowledge, skills and abilities in practice, carried out by studying the principles of project activities during the development of complex information security systems in the enterprise, specific methods and tools of project management; mastering the skills to perform the basic functions of project management in the field of cybersecurity.

Licensing and certification of information security tools. The purpose of studying the discipline is the formation of knowledge about the organization of the state licensing system in the field of information security, certification and certification of
information security objects, as well as organization of events on information security at the object of informatization and their legal support. The discipline reveals the basic concepts and types of information that is protected in accordance with the legislation of Ukraine, gives knowledge about the system of protection of state secrets, confidential information, forms the professional competencies necessary for the professional activity. Objectives of studying the discipline: study of information legislation of Ukraine and international legislation in the field of information security; formation of knowledge in the field of organization of state licensing in the field of information security; development of the skills of organization of the system of certification and attestation of objects of informatization.

**IT systems operation and maintenance security.** The theory of reliability and efficiency of computer systems and software in terms of restorative and non-renewable objects, in particular after events related to cyber incidents, is studied. The indicators of reliability, durability and storage of elements and systems, complex indicators of reliability are considered. Methods of construction of structural schemes of reliability and failure trees are studied. The methods of estimating the reliability of systems without restoration and with restoration, with reservation are considered. The basic concepts of technical diagnostics, principles of organization of systems of technical diagnostics and the use of automated diagnostic systems are studied.

**System software - part 1.** The purpose of studying the disciplines "System software" (Part 1) - training specialists for the effective use of modern computer technology in order to optimally use it in the tasks of information security and cybersecurity, gaining skills for working with Windows operating systems for installation and proper administration of the OS on personal computers and servers, in the work with packages of applications and additional software shells, etc.

**System software - part 2.** Part 2 of the "System Software" course covers topics related to developing Unix / Linux operating systems to install and fully administer OS on personal computers and servers.

**Information security audit fundamentals.** The discipline studies the systemic process of obtaining objective qualitative and quantitative assessments of the current state of security of the information system or information and telecommunication system, and also allows for a comprehensive assessment of the level of information security of the customer's information objects, taking into account three main factors: personnel, processes and technologies. A comparative analysis of the current state of the information system, which is determined by the results of the questionnaire, with the test model of the requirements of the standard ISO 27001.

The need for a regular information security audit is to assess the real state of the security of IP and / or IT resources and their ability to withstand external and internal threats to information security that are constantly changing and adapting. The State Ukrainian Enterprise "Ukrainian Special Systems" proposes to conduct an audit of information security at the objects of information activity of the Customer, with the purpose of determining the state of protection of IP and / or ITS, means of which are processed confidential or other critical information of the Client, as well as the compliance of IP and / or ITS standards and regulatory documents in the public or commercial sector.

**Threat and attack monitoring systems.** Studies: collection of event information from various information security devices and network devices; real-time visualization of events; support for signature and "behavioral" methods of detecting anomalies and attacks; ability to create own correlation rules; ability to control active network devices to block malicious traffic; predicting the results of the attack; risk analysis for the system; automatic determination of the status of the event (attack, scan, etc.); ability to process and analyze security incidents; focusing on priority nodes; automatic reactions to incidents.
Cross-platform programming. The purpose of teaching the subject "Cross-platform programming" is to provide students with the theoretical knowledge and practical skills of component programming, the principles of the technology of developing cross-platform software systems, the principles of using cross-platform programming tools. Themes: Architecture and standards of component models, communication tools and distributed computing; strategy integration software components; main intermediate platform and component models; formal and visual methods of constructing components; development of requirements and specifications of components of information systems and objects of professional activity; design of software components; design of the human-machine interface of information systems; integration of components into the system.

Information and psychological confrontation. Studies: the essence and characteristics of information warfare; concepts of information confrontation; components of information operations; ways and methods of psychological influence in information warfare; directions of using the Internet in information wars; ways to mislead the enemy in the information war; essence, characteristics, conditions of distribution and types of rumors in information wars; stages of information operations planning; methods of "image of the enemy" forming in information wars, etc.

Applications development and maintenance security. The purpose of the discipline is to study the means and methods of information security and security for the uninterrupted and efficient use of programs and data in various computerized systems, modern methods of data development and support, and promising algorithmic methods for protecting programs and data.

Information security incidents investigation. In order to process information security incidents and incidents, an incident response process must be organized. Discipline "Investigation of incidents of information security", respectively, acquaint students: with the methodology of organizing the process of responding to incidents IB; methods of providing coordination of response to an incident; means of confirmation / refutation of the fact of the incident of the IB; methods of minimization of violations of the order of work and damage to the IT system, methods of restoration in the shortest possible time of the organization’s operation in case of its violation as a result of the incident and minimize the consequences of violating the confidentiality, integrity and availability of IT information. Also, they study the main approaches to creating the conditions for protecting the reputation of the organization and its resources; the rapid detection and / or prevention of such incidents in the future; methods of company personnel training to identify, eliminate the consequences and prevent IB incidents, and inform the management in a timely manner about the state of information security.

Web-content management. The discipline addresses electronic document management systems and corporate web content management systems that provide effective information management through its secure storage and access organization. These systems are the basis for implementation of corporate content management and knowledge management strategies at the enterprise, which ensures its innovative development.

Information security products and services. The purpose of the discipline is to provide students with knowledge and skills to pass the information system penetration test. This test is the best way to assess the security of the information system as a whole, to identify individual vulnerabilities and to check the reliability of the existing mechanisms for protecting the information system from unauthorized influence, using different models of offenders. During the study of discipline the following topics are studied: methods for assessing the current state of information security; technique of identifying the vulnerabilities of information system – with respect to the degree of criticality; requirements of international standards and legislation; methodology for developing recommendations for improving the effectiveness of protection; methodology to provide the client with an
independent assessment of the selected information protection measures; methodology of data preparation for complex audit of information security of the object of informatization.

**Programming in modern OS environment.** The purpose of the discipline "Development of applications in modern OS" is the formation of students knowledge and skills of programming in the environment of modern OS (Linux, MacOS, Android), taking into account their structure, functions, positions in relation to multi-threaded data processing. In studying the discipline, students receive multi-threaded programming skills in high-level languages, with the use of modern integrated development tools, learn about aspects of the use of data containers, receive, in particular, skills for creating web applications.

**Computer networks administration.** The purpose of the discipline is to study the fundamentals of theory and to acquire practical skills in network administration of the information system of an organization - management of network nodes, network protocols, directory services, network services, file system resources management, rights of access to resources, printers, backup and restore systems, monitoring network devices and services.
2.16. FACULTY OF HUMANITIES AND PEAGOGY

Dean – Doctor of Philology, Professor Vasyl Shynkaruk

Tel.: (044) 527-80-83 E-mail: pedagogy_dean@twin.nubip.edu.ua
Location: Building № 3, Room 101

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

231 Social Work

Educational-professional Program «Social Work»

Guarantor of the program – Tverezovska Nina Trohymyvna
Tel.: (044) 527-83-57 E-mail: socpedagogy@ukr.net

Graduating Department:
Department of Social Work and Information Technologies in Education
Tel.: (044) 527-83-57 E-mail: socpedagogy@ukr.net
Head of department – Doctor of Pedagogy, Associate Professor Sopivnyk Iryna Vitalyivna

035 Philology

Educational-professional program “German and Other Foreign Language”

Guarantor of the program – Doctor of Philology, Professor Shynkaruk Vasyl Dmytrovych
Tel.: (044) 527-80-83 E-mail: pedagogy_dean@twin.nubip.edu.ua

Graduating Department:
Foreign Philology and Translation
Tel.: (044) 527-88-46 E-mail: kifip@ukr.net
Head of department – Doctor of Pedagogy, Professor Amelina Svitlana Mykolaivna

035 Philology

Educational-professional program “English and Other Foreign Language”

Guarantor of the program – Snitsar Valentyna Pavlivna
Tel.: (044) 527-85-95 E-mail: krgm@ukr.net

Graduating Department:
Romano-Germanic languages and translation
Tel.: (044) 527-85-95 E-mail: krgm@ukr.net
Head of department – Doctor of Pedagogy, Professor Kravchenko Nataliya Kymivna
291 International relations, social communications and regional studios

Educational-professional Program «International relations, public communications and regional studios»

Guarantor of the program – Serhii Bilan, Doctor of Historical Sciences, Professor
Tel.: (044) 527-81-16 E-mail: kaf_ist_pol@ukr.net

Graduating Department:
Department of International Relations and Social Sciences
Tel.: (044) 527-81-16 E-mail: kaf_ist_pol@ukr.net
Head of department – Doctor of History, Professor Bilan Serhii Oleksiiovych

015 Professional Education

Educational-professional Program «Professional Education (Technology of production and processing of agricultural products)»

Guarantor of the program – Doctor of Pedagogy, Professor Vasiuk Oksana Viktorivna
Tel.: (044) 5278355 E-mail: o.vasiuk@nubip.edu.ua

Graduating Department:
Peagogy
Tel.: (044) 527 - 83 - 55 E-mail: pedagogic@ukr.net
Head of department – Doctor of Pedagogy, Associate Professor Sopivnyk Ruslan Vasylovych

061 Journalism

Educational-professional program «Journalism»

Guarantor of the program – Doctor of Pedagogy, Professor Kostrytsia Nataliia Mykolaivna
Tel.: (044) 527 - 83 - 63 E-mail: ukr_eng_kaf@ukr.net

Graduating Department:
Department of Journalism and Linguistic Communication
Tel.: (044) 527 - 83 - 63 E-mail: ukr_eng_kaf@ukr.net
Head of department – Doctor of Pedagogy, Professor Kostrytsia Nataliia Mykolaivna
053 Psychology

Educational-professional Program «Psychology»

Guarantor of the program – Martinuk Irina Anatoliyvna, candidate of psychological sciences, associate professor
Tel.: (044) 527-83-54  E-mail: marteirene@ukr.net

Graduating Department:
Department of Psychology
Tel.: (067) 6965370 E-mail: shmargun2012@ukr.net
Head of department – Head of the Department – Doctor in psychology, Professor Shmargun Vitaly

017 Physical education and sports

Educational-professional Program «Physical education and sports»

Guarantor of the program – Krasnov Valeriy Pavlovych, candidate of pedagogical sciences, professor
Tel.: (044)-527-85-21, E-mail: krasnovvpl@gmail.com

Graduating department:
Physical education
Head of Department – Kostenko Mykola Petrovych
Tel.: (044)-527-85-21; E-mail: futbol.kostenko@gmail.com
Bachelor
Field of Knowledge «Social Work»
In specialty «SOCIAL WORK»
Educational-professional Program «Social Work»

Form of Training:  Licensed number of persons:
  Full-time  50
  Part-time  50
Duration of Training
  Full-time educational and professional program  4 years
  Part-time  5 years
Credits ECTS  240
Language of Teaching  Ukrainian, English
Qualification  bachelor of social work

The concept of training

The training of a social worker is determined by the need of the state for specialists who carry out work on social and pedagogical assistance, support, protection and rehabilitation of all categories of children and youth in rural areas. The professional activity of such a specialist provides for the solution of production issues in the areas of studying social and pedagogical problems on the socialization of wards of children and youth, organizing their social protection, providing counseling on social and pedagogical issues, organizing leisure activities, and assisting in the process of education for persons directly attitude.

Practical training

Practical training is carried out according to the schedule of the educational process directly on the certified base of practices, including: Centers of social services for families, children and youth; street childcare departments; children's health facilities; territorial centers of social services; pre-school educational institutions; secondary general education institutions; centers of social and psychological rehabilitation.

The academic rights of graduates can continue their studies in the specialties and educational programs for the training of masters, the names of which are given in table. 1.2 of section 1.3 of this Catalog.

Employment of Graduates

A social worker may work in the system of educational institutions, houses and centers of children’s creativity, centers and schools of art, social and educational services and clubs, child and social organizations, guardianship services, juvenile affairs services, specialized closed institutions for children, state centers and social work services, social protection and assistance units, employment and employment centers.
## Bachelor’s Program and Curriculum in Specialty «Social work»
### Educational and professional program «Social Work»

<table>
<thead>
<tr>
<th>Code n/a</th>
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### 1. GENERAL TRAINING CYCLE

#### Compulsory components

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<td>OK 2</td>
<td>Modern information systems</td>
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<td>exam</td>
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<tr>
<td>OK 3</td>
<td>Research workshop</td>
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<tr>
<td>OK 4</td>
<td>Social ecology</td>
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<td>OK 5</td>
<td>Valeology and age physiology</td>
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#### Compulsory components by decision of the Academic Council of the University

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<td>OK 7</td>
<td>Ukrainian language in the professional field</td>
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<td>OK 8</td>
<td>Latin</td>
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<td>OK 9</td>
<td>Philosophy and Religious Studies</td>
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### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

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<td>OK 14</td>
<td>Fundamentals of General and Social Pedagogy</td>
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<td>OK 15</td>
<td>Organization of leisure activities</td>
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<td>OK 16</td>
<td>History of social education and social work</td>
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<td>OK 17</td>
<td>Maintaining professional documents</td>
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<td>OK 23</td>
<td>Innovative models for the provision of social services</td>
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<td>Social Work Technologies</td>
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<td>Social design</td>
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<td>OK 28</td>
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#### Optional components

##### Optional components in the specialty (block 1)

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<td>BK 1.2</td>
<td>Communication and Assertiveness Training</td>
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<td>BK 1.4</td>
<td>The basics of defectology and pathopsychology</td>
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<td>BK 1.5</td>
<td>Social Diagnostics</td>
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##### Optional components in the specialty (block 2)

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<td>BK 2.3</td>
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<td>Social Responsibility and Entrepreneurship</td>
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<td>BK 2.5</td>
<td>Social work in the penitentiary system</td>
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<td>Social prevention</td>
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<td>Social gerontology</td>
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<td>BK 2.9</td>
<td>Social Security and Pensions</td>
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<td>BK 2.10</td>
<td>Socio-psychological work with military personnel and members of</td>
<td>6</td>
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</tbody>
</table>
Annotations of components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components of EPP

General and social psychology. Modern ideas about the psyche, fundamental statements of psychological science about the laws of mental processes, mental activity, emotional-volitional sphere, individual and typological personality traits, features of the organization and functioning of small groups and collectives, the dynamics of the development of interpersonal relationships.


Research workshop. Science and scientific thinking. The ability to determine the direction of a scientific result in solving problems and realizing the functions of science. The main categories of science. Ability to formulate and substantiate a scientific hypothesis. Scientific research. The ability to conduct scientific research. Technology of work with scientific literature. Ability to analyze scientific publications. System approach and system analysis. The ability to conduct a system analysis of the subject area of scientific research. Methodology of working with concepts. The ability to formulate definitions of concepts of the studied subject area. Organization of research work of students. The ability to effectively organize research activities.


Valeology and age physiology. General patterns of growth and development of children and adolescents; structural and functional characteristics of human organs and systems in the age aspect; components and factors in the formation of a healthy lifestyle;
patterns and features of the influence of society, which determine the health of a modern person.

Wellness worldview. Healthy lifestyle. The mechanisms of the organization of life on the principles of a healthy lifestyle.

**Compulsory components by decision of the Academic Council of the University**

Discipline components: History of Ukrainian statehood, Ukrainian language in the professional field, Latin, Philosophy and Religious Studies, Physical education, Foreign language see Section 2.1.

### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components OPP**

**Joining Social Work.** Social work as a science, its object, subject, structure, methods of cognition, functions, its place among other social sciences, the main stages of development; the concept of society as a whole, social development; culture as a mechanism for regulating society. Man in a social context.

**Social Leadership and Team Building.** The problem of leadership in the public sphere. Theories of Leadership. Professional qualities of a manager, organizational and psychological features of his activities. Power and influence as leadership tools. Leadership as a group process. Leader image. The development of leadership potential of the individual. Oratory of the leader. Organization and control of the implementation of management decisions, responsibility system.


**Fundamentals of General and Social Pedagogy.** Social formation of personality; social environment as an object and subject of socio-pedagogical impact; socio-pedagogical problems of certain categories of the population; sociopedagogy of the sociocultural sphere; history and prospects of social education.

**Organization of leisure activities.** The structure and functions of free time, its meaningful content in the field of leisure. Theory and practice of leisure. Organization of work in the field of leisure.

**History of social education and social work.** The origin and development of social work from ancient times to the XVIII century. Social work in the 19th-early 20th centuries. Features of social work in the twentieth century. Organization of social work at the present stage.

The development of the theory and practice of social education from ancient times to the present.

**Maintaining professional documents.** The history of the formation and development of document management. Modern requirements for the preparation and execution of documents. Classification of business papers. Rules for the presentation of the material and the logical construction of the text of the document.

Registration, basic details of organizational, administrative, personnel documentation, reference and information, economic and contractual and accounting and financial documentation.

Features of the preparation and maintenance of basic professional documents of an employee of a social institution. "Intervention Plan." Keeping professional records. Features of the report of the results of work of a social worker. Information and analytical support for social work.

**Social work with families, children and youth.** The basic principles of social work with families, children and youth. The effectiveness of the implementation of the main goals and objectives of social work with families, children and youth. Appropriate forms and methods of working with families, children and youth. The main directions of social work with families, children and youth.

**Theory of Social Work.** The historical reconstruction of the institutionalization of social work as a holistic process. Stages of development of social work in world history. Approaches to the description of reality in the social sciences and the theory of social work. The main components of the structure of the theory of social knowledge. Social work as: multilevel theory, paradigm theory, integrative. Social work in the context of modern scientific paradigms. The main discourses in social work. Concepts of social functioning in the theory of social work. Crisis and task-centered theory of social work.

**Private Fundamentals.** Social inspection as a component of social support in the system of social security and protection. Social inspection in Ukraine: basic concepts and general characteristics. Legislative regulation of social inspection. Violence as a subject of social inspection. Family as an object of social inspection. Indicators of domestic violence and how to identify them during social inspection. Mechanisms for implementing social partnership with various actors of the social protection system in social inspection.

**Socialization of personality.** Процес соціалізації. Стадії соціалізації. Витоки сучасної концепції соціалізації. Органи соціалізації. Механізми включення індивіда в суспільні процеси.

**Ethics and international standards of social work.** The moral foundations of professional social activities to assist people with disabilities, families, social groups and communities. Moral and ethical standards of behavior of social work specialists, social services workers. Professional morality of specialists. Ethical relations, ethical consciousness and ethical actions of a social worker. Normative regulation of relations, behavior and actions of individual representatives of a professional group and their associations.

World trends in the formation of standards of social work. Social policy and management of standards and quality of social services. The role of non-governmental organizations in the implementation of social services standards. Monitoring the quality of social services in communities. Quality planning practices. Quality Control Practices.

**Innovative models for the provision of social services.** Basic principles for the provision of social services. Types of social services and forms of their provision. Organization of activities for the provision of social services. Varieties of institutions for the provision of social services. The purpose and objectives of innovative models for the provision of social services for different categories of customers. Analysis of legislative regulations governing social services. The main provisions of the Ukrainian legislation on the provision of social services in order to acquire and enhance the professional competence of a social worker. Analysis of innovative models for the provision of various social services.

**The basics of screenwriting and art therapy.** Specificity, types, forms, genres of theatrical art, its functions. Technologies for organizing authoring scripts. Organization and management of the team, the features of directing and performing skills in social and educational work.

Social work with various groups of clients. The formation of social work with various groups of clients. Social work with pre-conscription and draft youth, military personnel and members of their families; low-income groups. Social assistance and support for people with disabilities. The system of providing social assistance to the elderly and single. Social work with people with alcohol and drug problems. Social work with sex workers. Features of social work with HIV-infected and AIDS patients. Organization of work with people without a fixed place of residence. Social work with groups of clients who have experienced domestic violence. Organization of work with victims of “human trafficking”. The specifics of social work with people of suicidal behavior. Organization of social support for persons returning from places of deprivation of liberty. Social work with families with children with special needs. Social work with youth and a young family. Social work with children left without parental care. Social work with street children.

Social Work Technologies. Basic social and social work technologies. Possibilities for the implementation of pedagogical and psychological methods in social and pedagogical work with various groups of clients. The course is based on the concept of a socio-pedagogical approach to social work as promoting personal self-development, realizing its creative potential, abilities, inclinations, enhancing the efforts of clients (individuals, groups, communities) to solve their own problems.

Social design. General idea of design, the history of design knowledge. Design as a means of transforming the surrounding reality. Design competency of the individual.

Social design as a special type of activity. Technology for the development and implementation of a social project. Description of the project management process.

Design culture of a social worker. Designing the social development of personality.

The system of organization and management of social services. Forms and methods of organization formation; functions of social services, the legal basis for the activities of social services, their relationship with state and public organizations. The nature and purpose of management consulting, types of consulting organizations. Management information support; social management personnel.

Optional components

Optional components in the specialty (block 1)

Group Cohesion Training. Features of psychological training as a form and method of assisting individuals and groups. Classification of training methods. Basic requirements for the organization and conduct of psychological training. Ethical aspects of conducting psychological training, the procedure for developing a training program for a course and individual training exercises, especially the provision of feedback in a group. Planning the work of the training group, taking into account the characteristics of the target audience, the actual conditions of the training and the level of own competence.

Communication and Assertiveness Training. Features of communication, its purpose, tasks and functions. Development of mutual understanding skills. The ability to listen as an important guarantee of effective communication. Development of mutual understanding skills.

The importance of tolerance in effective communication. The role of verbal and non-verbal means in communication. Conflict prevention and the basics of conflict-free interaction.
Consideration of the main provisions of the theory of assertiveness. Distinguishing the concepts of assertiveness, aggressiveness and shyness. Openness and directness of expressing one's own thoughts and feelings. Constructive criticism and adequate perception of criticism. Role-playing and mastering resilience using adequate feedback, critical comments, and trainer guidance.


**Social Diagnostics.** The purpose, tasks of social diagnostics as a science, academic discipline and technology of social work. The principles of social diagnosis. Requirements for the professional level of social diagnostics. Social Diagnostic Methods.

**Psychology of Personality.** The study of the mental properties of a person as a holistic entity, a certain system of mental qualities, has an appropriate structure, internal connections, is characterized by individuality and is interconnected with the surrounding natural and social environment.

**Optional components in the specialty (block 2)**

**Volunteer training and organization.** Volunteer assistance is one of the important methods of voluntary social work. The main approaches to volunteer assistance. Volunteering is an instrument of social, cultural, economic and environmental development. Organized and managed process of people's participation in the activities of state authorized bodies of authority in various non-governmental organizations and institutions of the third sector. Stages of training volunteers. Volunteer Motivation Levels.

**Social work in the territorial community.** Society as a center of social work. Legal basis of social work in society. A retrospective review of social work in society. Civil society as a factor in ensuring the vital functions of the social sphere. Resource support and the role of partnerships in organizing community-based social work. Forms of social work with the population in communities. Models of social workers in society. Strategies and tactics of social workers in society. Development and implementation of social projects at the local level. Public councils as a mechanism for participation in the formation of power decisions. Social work with the target audience in a territorial community.

**Counseling Basics.** The concept of counseling. The purpose and objectives of the advisory work. The nature and purpose of counseling. Categories of professionalism and culture of counseling. Management Consulting. Modeling the process of management consulting. Counseling methods. Areas of activity of a sociologist as a consultant.

**Social Responsibility and Entrepreneurship.** Social Responsibility Concept. Social responsibility as a factor in sustainable development. Social responsibility of a person, state and society. Organizational and economic support of social responsibility management. Formation of relations between employers and employees on the principles

**Social work in the penitentiary system.** Historical background of the formation and development of the penitentiary institution. Conceptual foundations of a penitentiary institution in the work of a social worker. Psychological and pedagogical activity of bodies executing punishment. The activities of social workers in the prison sector. The main methods and techniques of social work within the prison system. Socio-psychological methods of influencing group behavior. Interactive forms of social work as the central idea of prison policy. Psychoanalytic methods and techniques of penitentiary psychology. Diagnosis of informal interaction and the place of personality in a subculture. Features of social work with minors who return from places of imprisonment.


**Social gerontology.** Social gerontology as a science. An elderly person as a subject of age-related changes. Social factors determining the status of an elderly person in society. The quality of life of the elderly. Problems of socialization and socio-psychological adaptation of older people.


International social standards in the legislation of Ukraine. Social dialogue in the European Union. Socially-oriented non-governmental international organizations


**Social Security and Pensions.** Social Insurance Legislation. The history of the emergence and development of social insurance in Ukraine. Compulsory state social insurance. Types of compulsory state social insurance. Voluntary social insurance. A system of rights, obligations and guarantees providing for the provision of social protection.

Normative legal documents, legislative acts on the issues of pension provision.

**Socio-psychological work with military personnel and members of their families.** History of social work with military personnel in Ukraine and the world. The main documents and regulations governing social work with military personnel. Military social work. Tasks, functions and methods of social work with military personnel and their families. Forms of socio-psychological work with military personnel. Social monitoring and patronage of military families.

**Digital communications.** Development of computer communications infrastructure. Current state, prospects for the development and application of information technology; features of using modern software products.

**Social Advertising Basics.** Organization of work with Web-technologies; specifics of using modern software. The problem of using ICT in professional activities.

The main directions, principles of development, manufacture, placement and functioning of social advertising as a type of communication.
Bachelor
Field of Knowledge "Human sciences"
Specialty "Philology (German Languages and Literature) (Including Translation)"
Educational-professional program "German and Other Foreign Language"

Form of Training: Licensed number of persons:
– Full-time 25
– Part-time 15

Duration of Training:
– Full-time 4 years
– Part-time 5 years

Tests ECTS 240

Language of Teaching Ukrainian, German, English, French, Polish

Qualification Bachelor of Philology, Teacher of German and English

The concept of training

Training in "Philology (Translation)" are stipulated by requirements in the translation of scientific and technical literature and documentation in agrobiology, engineering and technology, forestry, ecology, research in product quality and safety, agribusiness, agricultural economics and others.

Practical Training

Practical training is an integral part of the educational process and is carried out according to the educational process schedule directly on authorized practice bases, including: institutions and enterprises of agrarian and environmental profiles of all forms of ownership having translation departments; research institutes and laboratories; translation agencies; secondary education institutions.

Academic rights of Graduates: graduates can apply for Master's Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.

Employment of Graduates

Bachelor of Philology is able to translate scientific, technical (agricultural) and business literature, work as a translator or interpreter at industrial and business establishments, professional and social organizations, publishing houses. Also a graduate can work as a teacher of foreign languages at secondary schools.
### Bachelor’s Program and Curriculum in Specialty

**"Philology (German Languages and Literature) (Including Translation)"**

**Educational-professional program "German and Other Foreign Language"**

<table>
<thead>
<tr>
<th>Code n/a</th>
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<th>Amount of tests ECTS</th>
<th>The final control</th>
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#### 1. GENERAL TRAINING CYCLE

**Compulsory components of EPP**

<table>
<thead>
<tr>
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<tr>
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<tr>
<td>CC 2 Fundamentals of Information Technologies and Applied Linguistics</td>
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<tr>
<td>CC 3 Introduction to Translation Studies</td>
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<tr>
<td>CC 4 Latin Language</td>
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<tr>
<td>CC 5 Introduction to Linguistics</td>
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**Compulsory components EPP by decision of the Academic Council of the University**

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<thead>
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<td>CCU1 Pedagogy</td>
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<tr>
<td>CCU2 History of Ukrainian Statehood</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>CCU3 Philosophy and Logic</td>
<td>4</td>
<td>exam</td>
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<tr>
<td>CCU4 Modern Ukrainian language</td>
<td>4</td>
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<tr>
<td>CCU5 Ethnocultural Studies, Ethics and Aesthetics</td>
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<tr>
<td>CCU6 Information Technology in Translation Projects</td>
<td>4</td>
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</tr>
<tr>
<td>CCU7 Physical Education</td>
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#### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components EPP**

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<td>CC 2.2 Stylistics of the Main Foreign language</td>
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<tr>
<td>CC 2.3 Comparative Lexicology of the Main Foreign and Ukrainian languages</td>
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<td>CC 2.4 Comparative Grammar of the Main Foreign and Ukrainian languages</td>
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<td>CC 2.5 Practice of Translation and Interpretation</td>
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<td>CC 2.6 Practical Grammar of the Main Foreign Language</td>
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<tr>
<td>CC 2.7 History of the Main Foreign Language</td>
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<tr>
<td>CC 2.8 Scientific and Technical Translation</td>
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<tr>
<td>CC 2.9 Computer Lexicography and Translation</td>
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<td>CC 2.10 Translation of Business Language and Correspondence</td>
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<tr>
<td>CC 2.11 Methodology of Teaching Foreign Languages</td>
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<td>CC 2.12 Aspect Translation of Agrarian Literature</td>
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<td>CC 2.13 Linguistic and Country Studies of Countries of the Main Foreign Language</td>
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**The total amount of compulsory components**

171

**Optional components**

**Optional components by specialty (block 1)**

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<th>Component</th>
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<td>OB 2.1 Practical Course of the Second Foreign Language and Translation: English.</td>
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<td>OB 2.2 Semantic and Stylistic Problems of Branch Texts Translation: a Cycle of Natural Sciences; a Cycle of Technical Sciences.</td>
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<td>OB 2.3 Practical Phonetics of the Main Foreign Language</td>
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**Optional components by specialty (block 2)**

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<tr>
<td>OB 2.2 Semantic and Stylistic Problems of Branch Texts Translation: a Cycle of Economic, a cycle of IT specialties.</td>
<td>8</td>
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<tr>
<td>OB 2.3 Polish Language</td>
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**Optional components by Student's Choice**

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<tr>
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</tbody>
</table>
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

**Psychology.** General issues of psychology; the peculiarities of psyche development in phylogenesis and ontogenesis; psychological processes; states of mind and person’s peculiarities.

**Fundamentals of Information Technologies and Applied Linguistics.** Structure peculiarities and technical characteristics of modern personal computers and other devices, their application in conducting linguistic research and translation.

**Introduction to Translation Studies.** Translation and its types; the history of foundation and development of translation theories in Ukraine and other countries; theory and classification of translation units; lexical, grammatical and syntactic transformations; stylistic characteristics of idioms, proverbs and sayings, slang, phrasal verbs, and colloquial expressions.

**Latin Language.** Mastering the Latin language, as well as skills needed for translating Latin texts and using Latin terminology in teaching, scientific and production activities.

**Introduction to Linguistics.** General issues of contemporary linguistics: general information about language and linguistics as a discipline, nature and essence of language, its origin, regularities of its development and functioning at different historical stages, origin and development of writing, genealogical and typological classification of languages, structural levels and language units, etc.

Compulsory components by decision of the Academic Council of the University

**Pedagogy.** The discipline deals with the theory and practice of organization of teaching (didactics), education and management of education (school science).

**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 mastering the theoretical course, creatively applying their knowledge in practice and comprehending on 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.
**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 displays. The course is marked by ideological orientation, which allows synthesizing the acquired knowledge on professional and humanitarian disciplines in a holistic worldview – the theoretical basis of the university level of training specialists. The method of logic, the basic forms and laws of thinking, the preconditions for the emergence of modern logic, the division of classical logic, the typology and analysis of formal logical theories within the logic of utterances and the logic of predicates.

**Modern Ukrainian language.** Orthographic, morphological, lexical, stylistic, syntactic and punctuation norms of the contemporary standard Ukrainian language; genres of professional communication and their main communicative features; culture of dialogue and political speech; the principles of structural-stylistic analysis and correction of the text in accordance with the norms of the standard Ukrainian language.

**Ethnocultural Studies, Ethics and Aesthetics.** The discipline studies the development of cultural (and linguistic-cultural) processes among peoples during their development. One of the aspects of ethnocultural studies is the specifics of everyday, factual and other types of communicative behavior of the ethnic group. The main tendencies in modern international communication, the basis of the international protocol and etiquette, diplomatic and international correspondence are considered as well.

**Information Technology in Translation Projects.** Implementation of translation activities with the use of automated translation systems (CAT-systems), working out collective interaction in the implementation of translation projects with the use of SDL Trados.

**Physical Education.** The purpose of teaching the discipline is the formation of the physical culture of a young specialist and the ability to implement it in the social professional activity and family. The task is to strengthen the students' health and develop physical abilities that correspond to the professional activity of a future specialist.

2. **SPECIAL (PROFESSIONAL) TRAINING CYCLE**

**Practical Course of the Main Foreign Language.** Acquiring knowledge in phonetics, vocabulary, and practical grammar of the foreign language; mastering reading and listening skills as well communication and writing skills.

**Stylistics of the Main Foreign language.** The essence of the language stylistics, communicative and texts stylistics, functioning of language units in the language system; functioning styles and their characteristics, criteria, methods of analysis and texts’ interpretation.

**Comparative Lexicology of the Main Foreign and Ukrainian languages.** Theoretical fundamentals 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.** Typological peculiarities of the foreign and Ukrainian languages; grammatical constructions in compared languages; similar attributes and distinctions in the systems of grammar categories in various parts of speech, and syntactic units.

**Practice of Translation and Interpretation.** Theoretical and practical fundamentals of translation and interpretation; translation transformations; non-equivalent vocabulary; types of semantic equivalents; contextual meaning of lexical units; types of semantic equivalents; factors of style.

**Practical Grammar of the Main Foreign Language.** Studying grammatical system of the foreign language, acquiring skills of recognition, understanding and use of grammatical forms in oral and written communication.
History of the Main Foreign Language. Processes of language and its structure formation and development; the language historical characteristics and attributes; similarity with other languages of the same language group; its specific peculiarities.

Scientific and Technical Translation. Solution of grammatical, lexical, terminological and genre-stylistic tasks; ways of translation of different scientific and technique phenomena.

Computer Lexicography and Translation. It is designed to introduce students to the contemporary 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; their usage and creating.

Translation of Business Language and Correspondence. Basic lexical and grammatical features of the style of business language and speech as well as means of their reproduction in translation, genre classification of business documents are considered within the course.

Aspect Translation of Agrarian Literature. Theoretical fundamentals of the translation of texts on agrarian subjects, methods of adequate reproduction of various types of terminology, characteristic of agrarian literature, the formation of skills for adequate translation.

Methodology of Teaching Foreign Languages. Objectives, content, principles of teaching foreign languages; methods and forms of teaching; planning of the foreign language teaching-learning process; technologies of formation of language and speech competences at the level determined by the current legislation.

Linguistic and Country Studies of Countries of the Main Foreign Language. Language units that reflect national cultural peculiarities, formation of communicative students’ competency in intercultural communications through appropriate perception of oral speech and original texts.

Optional components

Optional components by specialty (block 1)

Practical Course of the Second Foreign Language and Translation (English). Acquiring knowledge on phonetics, vocabulary, practical grammar, mastering skills of listening, reading and literally normalized oral and written speech.

Semantic and Stylistic Problems of Branch Texts Translation: a Cycle of Natural Sciences; a Cycle of Technical Sciences. The system of theoretical knowledge and specific patterns of adequate translation of the linguistic units (words, combinations, idioms, free phrases specific by their structural form, sentences, text; familiarization with the semantic-stylistic problems of translating texts of the following branches: natural sciences, technical sciences, economic sciences.

Practical Phonetics of the Main Foreign Language. The course of phonetics of contemporary English involves general acquaintance of students with phonemic characteristics, sound changes in the speech flow (accommodation, assimilation, dissimilation, alternation, simplification, elongation, prosthesis, epenthesis, and metathesis). The stress and emphasis, practical composition, and intonation are also included in this course. Students will learn theoretical material, develop practical skills in phonetic and phonological transcription and phonetic analysis of the text.
**Optional components by specialty (block 2)**

**Practical Course of the Second Foreign Language and Translation (French).** Acquiring knowledge on phonetics, vocabulary, practical grammar, mastering skills of listening, reading and literally normalized oral and written speech.

**Semantic and Stylistic Problems of Branch Texts Translation:** a Cycle of Economic Sciences, a Cycle of IT specialty. The system of theoretical knowledge and specific patterns of adequate translation of the linguistic units (words, combinations, idioms, free phrases specific by their structural form, sentences, text; familiarization with the semantic-stylistic problems of translating texts of the following branches: natural sciences, technical sciences, economic sciences.

**Polish Language.** Acquiring knowledge on phonetics, vocabulary, grammar and stylistics of the Polish language, mastering skills of translating Polish authentic texts. Orthographical, morphological, lexical, stylistic, syntactic and punctuation norms of contemporary standard Polish language; genres of formal and informal communication and their main communicative features; culture of dialogue and political speech; the principles of stylistic analysis and correcting the text in accordance with the norms of contemporary standard Polish language.
Bachelor  
Field of Knowledge "Human sciences"  
Specialty "Philology (German Languages and Literature) (Including Translation)"  
Educational-professional program "English and Other Foreign Language"

<table>
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<th>Form of Training:</th>
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<td>– Full-time</td>
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<td>– Part-time</td>
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<td>Ukrainian, German, English, French, Polish</td>
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<table>
<thead>
<tr>
<th>Qualification</th>
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</thead>
<tbody>
<tr>
<td>Bachelor of Philology, Teacher of English and German</td>
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</table>

**The concept of training**

Training in "Philology (Translation)" are stipulated by requirements in the translation of scientific and technical literature and documentation in agrobiology, engineering and technology, forestry, ecology, research in product quality and safety, agribusiness, agricultural economics and others.

**Practical Training**

Practical training is an integral part of the educational process and is carried out according to the educational process schedule directly on authorized practice bases, including: institutions and enterprises of agrarian and environmental profiles of all forms of ownership having translation departments; research institutes and laboratories; translation agencies; secondary education institutions.

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

**Employment of Graduates**

Bachelor of Philology is able to translate scientific, technical (agricultural) and business literature, work as a translator or interpreter at industrial and business establishments, professional and social organizations, publishing houses. Also a graduate can work as a teacher of foreign languages at secondary schools.
## Bachelor’s Program and Curriculum

**Specialty "Philology (German Languages and Literature) (Including Translation)"**

**Educational-professional program "English and Other Foreign Language"**

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<thead>
<tr>
<th>Code n/a</th>
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<td>CCU2 History of Ukrainian Statehood</td>
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<td>CCU3 Philosophy and Logic</td>
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<td>CCU4 Modern Ukrainian language</td>
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<td>CCU5 Ethnocultural Studies, Ethics and Aesthetics</td>
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<td>CCU6 Information Technology in Translation Projects</td>
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<td></td>
<td>CCU7 Physical Education</td>
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<td>CC 2.10 Translation of Business Language and Correspondence</td>
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<td>OS2 Subject 2</td>
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</table>
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

**Psychology.** General issues of psychology; the peculiarities of psyche development in phylogenesis and ontogenesis; psychological processes; states of mind and person's peculiarities.

**Fundamentals of Information Technologies and Applied Linguistics.** Structure peculiarities and technical characteristics of modern personal computers and other devices, their application in conducting linguistic research and translation.

**Introduction to Translation Studies.** Translation and its types; the history of foundation and development of translation theories in Ukraine and other countries; theory and classification of translation units; lexical, grammatical and syntactic transformations; stylistic characteristics of idioms, proverbs and sayings, slang, phrasal verbs, and colloquial expressions.

**Latin Language.** Mastering the Latin language, as well as skills needed for translating Latin texts and using Latin terminology in teaching, scientific and production activities.

**Introduction to Linguistics.** General issues of contemporary linguistics: general information about language and linguistics as a discipline, nature and essence of language, its origin, regularities of its development and functioning at different historical stages, origin and development of writing, genealogical and typological classification of languages, structural levels and language units, etc.

Compulsory components by decision of the Academic Council of the University

**Pedagogy.** The discipline deals with the theory and practice of organization of teaching (didactics), education and management of education (school science).

**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 mastering the theoretical course, creatively applying their knowledge in practice and comprehending on 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.
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 displays. The course is marked by ideological orientation, which allows synthesizing the acquired knowledge on professional and humanitarian disciplines in a holistic worldview – the theoretical basis of the university level of training specialists. The method of logic, the basic forms and laws of thinking, the preconditions for the emergence of modern logic, the division of classical logic, the typology and analysis of formal logical theories within the logic of utterances and the logic of predicates.

Modern Ukrainian language. Orthographic, morphological, lexical, stylistic, syntactic and punctuation norms of the contemporary standard Ukrainian language; genres of professional communication and their main communicative features; culture of dialogue and political speech; the principles of structural-stylistic analysis and correction of the text in accordance with the norms of the standard Ukrainian language.

Ethnocultural Studies, Ethics and Aesthetics. The discipline studies the development of cultural (and linguistic-cultural) processes among peoples during their development. One of the aspects of ethnocultural studies is the specifics of everyday, factual and other types of communicative behavior of the ethnic group. The main tendencies in modern international communication, the basis of the international protocol and etiquette, diplomatic and international correspondence are considered as well.

Information Technology in Translation Projects. Implementation of translation activities with the use of automated translation systems (CAT-systems), working out collective interaction in the implementation of translation projects with the use of SDL Trados.

Physical Education. The purpose of teaching the discipline is the formation of the physical culture of a young specialist and the ability to implement it in the social professional activity and family. The task is to strengthen the students’ health and develop physical abilities that correspond to the professional activity of a future specialist.

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Practical Course of the Main Foreign Language. Acquiring knowledge in phonetics, vocabulary, and practical grammar of the foreign language; mastering reading and listening skills as well communication and writing skills.

Stylistics of the Main Foreign language. The essence of the language stylistics, communicative and texts stylistics, functioning of language units in the language system; functioning styles and their characteristics, criteria, methods of analysis and texts’ interpretation.

Comparative Lexicology of the Main Foreign and Ukrainian languages. Theoretical fundamentals 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. Typological peculiarities of the foreign and Ukrainian languages; grammatical constructions in compared languages; similar attributes and distinctions in the systems of grammar categories in various parts of speech, and syntactic units.

Practice of Translation and Interpretation. Theoretical and practical fundamentals of translation and interpretation; translation transformations; non-equivalent vocabulary; types of semantic equivalents; contextual meaning of lexical units; types of semantic equivalents; factors of style.

Practical Grammar of the Main Foreign Language. Studying grammatical system of the foreign language, acquiring skills of recognition, understanding and use of grammatical forms in oral and written communication.
History of the Main Foreign Language. Processes of language and its structure formation and development; the language historical characteristics and attributes; similarity with other languages of the same language group; its specific peculiarities.

Scientific and Technical Translation. Solution of grammatical, lexical, terminological and genre-stylistic tasks; ways of translation of different scientific and technique phenomena.

Computer Lexicography and Translation. It is designed to introduce students to the contemporary 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; their usage and creating.

Translation of Business Language and Correspondence. Basic lexical and grammatical features of the style of business language and speech as well as means of their reproduction in translation, genre classification of business documents are considered within the course.

Aspect Translation of Agrarian Literature. Theoretical fundamentals of the translation of texts on agrarian subjects, methods of adequate reproduction of various types of terminology, characteristic of agrarian literature, the formation of skills for adequate translation.

Methodology of Teaching Foreign Languages. Objectives, content, principles of teaching foreign languages; methods and forms of teaching; planning of the foreign language teaching-learning process; technologies of formation of language and speech competences at the level determined by the current legislation.

Linguistic and Country Studies of Countries of the Main Foreign Language. Language units that reflect national cultural peculiarities, formation of communicative students' competency in intercultural communications through appropriate perception of oral speech and original texts.

Optional components

Optional components by specialty (block 1)

Practical Course of the Second Foreign Language and Translation (German). Acquiring knowledge on phonetics, vocabulary, practical grammar, mastering skills of listening, reading and literally normalized oral and written speech.

Semantic and Stylistic Problems of Branch Texts Translation: a Cycle of Natural Sciences; a Cycle of Technical Sciences. The system of theoretical knowledge and specific patterns of adequate translation of the linguistic units (words, combinations, idioms, free phrases specific by their structural form, sentences, text; familiarization with the semantic-stylistic problems of translating texts of the following branches: natural sciences, technical sciences, economic sciences.

Practical Phonetics of the Main Foreign Language. The course of phonetics of contemporary English involves general acquaintance of students with phonemic characteristics, sound changes in the speech flow (accommodation, assimilation, dissimilation, alternation, simplification, elongation, prosthesis, epenthesis, and metathesis). The stress and emphasis, practical composition, and intonation are also included in this course. Students will learn theoretical material, develop practical skills in phonetic and phonological transcription and phonetic analysis of the text.
Optional components by specialty (block 2)

**Practical Course of the Second Foreign Language and Translation (French).** Acquiring knowledge on phonetics, vocabulary, practical grammar, mastering skills of listening, reading and literally normalized oral and written speech.

**Semantic and Stylistic Problems of Branch Texts Translation:** a Cycle of Economic Sciences, a Cycle of IT specialty. The system of theoretical knowledge and specific patterns of adequate translation of the linguistic units (words, combinations, idioms, free phrases specific by their structural form, sentences, text; familiarization with the semantic-stylistic problems of translating texts of the following branches: natural sciences, technical sciences, economic sciences.

**Polish Language.** Acquiring knowledge on phonetics, vocabulary, grammar and stylistics of the Polish language, mastering skills of translating Polish authentic texts. Orthographical, morphological, lexical, stylistic, syntactic and punctuation norms of contemporary standard Polish language; genres of formal and informal communication and their main communicative features; culture of dialogue and political speech; the principles of stylistic analysis and correcting the text in accordance with the norms of contemporary standard Polish language.
Curricula and Programs of Bachelor Degree

Bachelor
field of knowledge «International relations»
specialty «INTERNATIONAL RELATIONS, PUBLIC COMMUNICATION AND REGIONAL STUDIOS»

Educational-professional program «International relations, public communications and regional studios»

Form of education: Licensed amount:
– full-time 100 people
– external
Training period: full-time form 4 years
External form 5 years
Tests 240 ECTS
Teaching language Ukrainian, English
Qualification of graduates an expert on international relations

Concept of training

Training in the field of international relations, public communications and Regional Studios 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.

Proposed Topics for Bachelor theses

1. Westphalia Agreement: International Legal and Geopolitical Consequences.
2. The Congress of Vienna and Its International Concern.
3. The Main Points of Diplomatic Controversy in Europe XVIII Century.
5. Diplomatic Training by Otto von Bismarck of the German Union under the Auspices of Prussia.
6. Diplomatic Preparation of The First World War by the Leading Countries of Europe.
10. Ukraine is the Founder of the United Nations.
Academic rights of graduates - can continue their studies at the Master Program for specializations, basis for which is introduced in the curriculum of undergraduate programs, starting from the second or third course:
291 «Diplomacy and Diplomatic Service» (Prelim.)
291 «International cooperation in the agro-business sector» (Prelim.)
291 «International research and educational projects» (Prelim.)
291 «International organizations and multilateral diplomacy» (Prelim.)
291 «International Politics Analysis» (Prelim.)

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»

**Educational-professional program**
«International relations, public communications and regional studies»

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#### 1. GENERAL TRAINING CYCLE

**Compulsory components EPP**

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<td>International Economic Relations with Fundamentals of Economic Theory</td>
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<td>CC 3</td>
<td>Conflictology and Theory of Negotiation</td>
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<td>CC 4</td>
<td>Fundamentals of World Policy</td>
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**Compulsory components EPP by decision of the Academic Council of the University**

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#### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components EPP**

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<td>CC 11</td>
<td>Fundamentals of Scientific Research</td>
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<td>CC 12</td>
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<td>CC 13</td>
<td>Introduction to Specialty «International Relations»</td>
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<td>CC 16</td>
<td>European Union in International Relations</td>
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<tr>
<td>CC 17</td>
<td>Foreign Policy and Diplomacy of Ukraine</td>
<td>4</td>
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<td>CC 18</td>
<td>Foreign Policy of Western European and North American Countries</td>
<td>4</td>
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<tr>
<td>CC 19</td>
<td>Foreign Policy of the Former Soviet Union</td>
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<td>exam</td>
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<td>CC 20</td>
<td>Міжнародна інформація та сучасні політичні інформаційні системи і технології International Information and Modern Political Systems and Technologies</td>
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<td>CC 21</td>
<td>History of International Relations</td>
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<td>Country Studies</td>
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<td>CC 23</td>
<td>International Relations and World Policy</td>
<td>8</td>
<td>exam, KW</td>
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<td>CC 24</td>
<td>International Organizations</td>
<td>4</td>
<td>exam</td>
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<tr>
<td>CC 25</td>
<td>Current Trends in International Relations</td>
<td>4</td>
<td>exam, KW</td>
</tr>
<tr>
<td>CC 26</td>
<td>Теорія міжнародних відносин, цивілізацій та міжнародні конфлікти Theory of International Relations, Civilizations and International Conflicts</td>
<td>8</td>
<td>exam</td>
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</tbody>
</table>

**The total amount of Compulsory components**: 180
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

World Economy and Foreign Economic Relations of Ukraine. The peculiarities of functioning of the world economic sphere, the system of existing and prospective foreign economic relations of Ukraine, the problems encountered before the state are considered.
International Economic Relations with Fundamentals of Economic Theory. 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. 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.

Conflictology and Theory of Negotiation. The nature of conflict and possible solutions, including an efficient negotiation process; systematic professional approach to work with conflict and organizing negotiations.

Fundamentals of World Policy. 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.

Foreign Language. Mastering phonetic, lexica, and practical grammar knowledge, as well as skills dealing with audio, reading, oral and written communication.

Practical Course of Branch 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.

Private International 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.

Comparative Constitutional and Public International 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. Key provisions of international and domestic law, types of liability and sanctions in international public law; relationship between international and domestic law.

Theory and History of the State, Law and Political Studies. The nature and essence of the leading political institutions and basic streamlining the legal framework in the country; leading characteristics of the state and socio-political situation in and around it, given the wide range of political and legal knowledge. 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.

Compulsory components by decision of the Academic Council of the University


2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

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.
**Fundamentals of 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.** Particularities 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.

**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 Policy and Diplomacy of Ukraine.** Particularities of foreign policy 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.

**Foreign Policy of Western European and North American Countries.** Particularities of the foreign policy of Western European and North American Countries, the specifics of foreign policy of countries of the region, role and place of Western European and North American Countries in world policy.

**Foreign Policy of the Former Soviet Union.** Particularities of the organization of political, socio-economic and cultural life of the countries that arose in the territory of the former USSR; specificity of interaction between Former Soviet Union: interstate relations, contradictions, conflicts, ways of their solution; CIS as a subject of international law and relations, peculiarities of its functioning; the role of the Russian Federation in the life of the Former Soviet Union, in particular as successor to the USSR; the position of Ukraine in the Former Soviet Union: friends and rival states; Baltic-Black Sea Union, its destiny; GUAM, principles and perspectives of functioning; peculiarities of diplomatic activity and foreign policy activity of Former Soviet Union.

**International Information and Modern Political інформаційні Systems and Technologies.** 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. 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.

**History of International Relations.** 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. International relations, their laws, the major international conflicts, diplomatic events, peace talks, conference documents and materials that characterize international relations.
Country Studies. 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 Relations and World Policy. 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 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.

Current Trends in International Relations. Features of the system of international relations from the end XX 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.

Theory of International Relations, Civilizations and International Conflicts. 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. 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 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.

Optional components

Optional components by specialty

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’s Countries. 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.

Fundamentals of Agricultural Consulting and Marketing. 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. The essence and principles of management and decision making; structure of economic and exchange domains, rules of their operation.

Foreign Policy of CEE and SEE Countries. Particularities and key principles of foreign policy countries of the region, the role and the place of CEE and SEE in world policy; differences and similarities in the foreign policy countries of the region.
**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.

**Fundamentals of Business-Designing.** The peculiarities of the fundamentals of business-designing, basic information on starting own occupation and own business are considered. The essence of economic phenomena and processes in business-designing, a comprehensive analysis of the agrarian sector and the international market of agricultural products, the exchange and consumption of material and spiritual goods in society.

**The Political Geography of the World’s Countries.** 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 and Sociology.** 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. 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.

**Regional Science, Ethnic and Demographic Processes in the World Regions.** 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. 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.
Bachelor
Field of Knowledge «Education/ Pedagogy»
in Specialty «PROFESSIONAL EDUCATION, AGRICULTURAL PRODUCTION,
PROCESSING OF AGRICULTURAL PRODUCTS AND FOOD TECHNOLOGIES»
Educational-professional program «Professional Education (Technology of
production and processing of agricultural products)»

<table>
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<tr>
<th>Form of Training:</th>
<th>Licensed number of persons:</th>
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<td>– Full-time</td>
<td>20</td>
</tr>
<tr>
<td>– Part-time</td>
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<table>
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<tr>
<th>Duration of Training</th>
<th>Tests ECTS</th>
<th>Language of Teaching</th>
<th>Qualification</th>
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<tr>
<td>3 years 10 months</td>
<td>240</td>
<td>Ukrainian, English</td>
<td>Bachelor of professional education (Agricultural production, processing of agricultural products and food technologies)</td>
</tr>
</tbody>
</table>

**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.

**Academic rights of Graduates:** graduates can apply for Master’s Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.

**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. Agricultural production, processing of agricultural products and food technologies»
Educational-professional program «Professional Education (Technology of production and processing of agricultural products)»

<table>
<thead>
<tr>
<th>Code</th>
<th>Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of tests ECTS</th>
<th>The final control</th>
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<td><strong>1. GENERAL TRAINING CYCLE</strong></td>
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<td>Compulsory components EPP</td>
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</tr>
<tr>
<td>CC 1</td>
<td>Valeology and basic medical knowledge</td>
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<tr>
<td>CC 2</td>
<td>Psychology</td>
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<td>Ukrainian language in professional communication</td>
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<td>History of Ukraine</td>
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<td>CCU 3</td>
<td>Ethnoculturology</td>
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<td>Philosophy</td>
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<td>Foreign language</td>
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<tr>
<td>CCU 6</td>
<td>Legal culture</td>
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<td>CCU 7</td>
<td>Latin language</td>
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<td>CCU 8</td>
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<td>CC 4</td>
<td>General and professional pedagogics</td>
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<td>exam</td>
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<td>CC 5</td>
<td>Educational work organising</td>
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<td>exam</td>
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<tr>
<td>CC 6</td>
<td>Basics of scientific and pedagogic research</td>
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<td>CC 7</td>
<td>Basics of pedagogic mastery</td>
<td>4,0</td>
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<tr>
<td>CC 8</td>
<td>Pedagogical technologies</td>
<td>4,0</td>
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<td>CC 9</td>
<td>Legislation of Management of educational establishments</td>
<td>3,0</td>
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<tr>
<td>CC 10</td>
<td>New innovation technologies</td>
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</tr>
<tr>
<td>CC 11</td>
<td>Introduction to speciality</td>
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</tr>
<tr>
<td>CC 12</td>
<td>Pedagogics of family education.</td>
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<td>CC 13</td>
<td>History of pedagogics (History of pedagogics and education in Ukraine, Foreign history of pedagogics and education)</td>
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<td>test, exam</td>
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<td>CC 14</td>
<td>Teaching technologies of professional subjects</td>
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<td>CC 15</td>
<td>Comparative pedagogics</td>
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<td>test, exam</td>
</tr>
<tr>
<td>CC 16</td>
<td>Leadership and administration</td>
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<tr>
<td>CC 17</td>
<td>Technology of production and processing of agricultural products</td>
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<td>Technology of production and processing of crop production</td>
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<td>Technology of production and processing of livestock production</td>
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<tr>
<td></td>
<td>Technology of storing and standardization of plant growing products</td>
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<td>Forage producing and grass-farming</td>
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<td>CC 18</td>
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<td>OB 1.1</td>
<td>Basics of economical knowledge</td>
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<td>exam</td>
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<td>OB 1.2</td>
<td>Educational Measurements</td>
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<td>OB 1.2</td>
<td>The basics of happiness</td>
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<th>Course</th>
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<tr>
<td>OB 2.1</td>
<td>Informational and communicational technologies of training Methods of work of the student group mentor Organization of practical training Methods of forming student team</td>
<td>7.0</td>
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<tr>
<td>OB 2.2</td>
<td>Management of the educational establishment Philosophy of education</td>
<td>4.0</td>
<td>coursework, exam</td>
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<tr>
<td>OB 2.3</td>
<td>Fundamentals of Business-Designing Social work in entertainment sphere</td>
<td>4.0</td>
<td>exam</td>
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<tr>
<td>OB 2.4</td>
<td>Farming Biology Geodesy Financial Accounting Painting</td>
<td>3.0</td>
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<tr>
<td>OB 2.5</td>
<td>Soil science General ecology Economics of enterprise Aesthetics</td>
<td>3.0</td>
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<tr>
<td>OB 2.6</td>
<td>Selection and seed growing Monitoring of environment Mechanization of forestry Management Phytodesign</td>
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<tr>
<td>OB 2.7</td>
<td>Agrochemistry Chemistry and biogeochemistry Forest phytopathology and entomology Marketing Composition and colour study</td>
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<tr>
<td>OB 2.8</td>
<td>Commodity science of raw materials and products of crop production Ecological analysis Forestry Organizing of production Basics of arrangement</td>
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<tr>
<td>OB 2.9</td>
<td>Horticulture Ecological protection of agrosystem Forest melioration Agricultural management Theory and methodology of design</td>
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<tr>
<td>OB 2.10</td>
<td>Vegetable growing Environmental protection and sustain environmental management Forest crops Finances Decorative floristic</td>
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<tr>
<td>OB 2.11.</td>
<td>Machinery in crop production</td>
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<tr>
<td>OB 2.11.</td>
<td>Management of quality of agricultural products</td>
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<td>OB 2.11.</td>
<td>Organising of forestry production</td>
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<tr>
<td>OB 2.11.</td>
<td>Tax system</td>
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<td>OB 2.11.</td>
<td>Decorative art</td>
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<tr>
<td>OB 2.12.</td>
<td>Machinery in animal husbandry</td>
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<td>exam</td>
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<td>OB 2.12.</td>
<td>Ecological legislation</td>
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<td>OB 2.12.</td>
<td>Basics of forest exploitation</td>
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<tr>
<td>OB 2.12.</td>
<td>Computers and computer technology in agriculture</td>
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**Optional components by Student’s Choice**

| OS 3.1. | Subjects 1 | 3.0 | test |
| OS 3.2. | Subjects 2 | 3.0 | exam |

**The total amount of Optional components**

67

### 3. OTHER TYPES OF TRAINING

| CC 19 | Studying pedagogical practice | 3.0 | |
| CC 20 | Studying technological practice | 4.0 | |
| CC 21 | Industrial technological practice | 4.0 | |
| CC 22 | Industrial pedagogical practice | 4.0 | |
| | State Attestation | 1.0 | |

**THE TOTAL AMOUNT OF EPP (without military training)**

240

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Annotations of Components in the curriculum

### 1. GENERAL TRAINING CYCLE

#### Compulsory components

**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.

**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.

**Age pedagogy.** 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.

#### Compulsory components by decision of the Academic Council of the University

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

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. 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.

Basics of scientific and pedagogic 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.

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.

Legislation of Management of educational establishments. 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 innovation technologies. The course program reveals the use of basic innovative educational technologies, their principles, methods, types and activities. It deals with the regularities and fundamental problems of the use of innovative educational technologies by the future teacher. Much attention is paid to pedagogical culture, communication styles, advanced educational technologies, teaching techniques in higher education in the form of mini-lectures with multimedia presentations, training exercises, and the creation of a program for professional development.
Introduction to speciality. The discipline outlines the main tasks and functions of the professional learning teacher, requirements to his personality and the organization of labour conditions.

Pedagogics of family education. 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 pedagogics. History of pedagogics 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 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.

Foreign history of pedagogics and education. 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.

Teaching technologies of professional subjects. 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.

Comparative pedagogics. 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.

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.

Technology of production and processing of agricultural products. The main objective of the subject is to provide knowledge on creating optimal technological (agro-environmental) prerequisites for producing the required amount of high-quality crop products based on intense photosynthesis in field crops while maintaining or increasing soil fertility. The main objective is: to acquire practical skills in producing high quality, environmentally friendly products with minimal energy and labor costs at high efficiency. This requires the implementation of intensive, energy-saving and resource-saving technologies. The course examines the basic principles of storage of crop products both fresh and processed; technologies of its processing; and methods of quality control and food safety. During this course students develop skills to determine the quality of raw materials; to design production lines and to introduce high-efficiency technologies of processing of crop products into quality food; to control the quality of products in the process of long-term storage and the quality of processed products.

Technology of production and processing of livestock production. Fundamentals of organization of livestock industries, activity of agricultural enterprises, planning of production technology for the main types of livestock products. The current state of animal husbandry in Ukraine and the introduction of new technologies for the production of livestock products require the ability to evaluate the effectiveness of a particular technology, taking into account its components. Theoretical bases of labor

**Technology of storing and standardization of plant growing products.** 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.

**Forage producing and grass-farming.** 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.

**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.

**Optional components**

**Optional components by specialty (block 1)**

**Basics 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.

**Educational Measurements.** The subject provides in-depth training for future professionals in education sector to understand the specifics of educational measurement as a tool to assess students' level of knowledge and quality of organization of the educational process in educational institutions. It is also the basis of expert activities in providing quality education.

**Pedagogical ethic.** 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.

**The basics of happiness.** This subject examines the idea of happiness, understanding of its essence, which significantly affects the life of the individual. The concept of "happiness" as a result of knowledge. The basis of happiness, as a measure of human virtue, a set of factors that determine its well-being (health, material well-being, luck, etc.). Objective basics of happiness.
Optional components by specialty (block 2)

**Informational and communicational technologies of training.** The development of computer communication infrastructure. The current state, prospects for the development and application of information technology; features of the use of modern software; organization of work with Web-technologies; specifics of using modern software. The problem of using ICT in professional activities.

**Methods of work of the student group mentor.** The subject studies the history of mentoring, current research of the problem of mentoring, regulatory and methodological materials, the role of the mentor (supervisor) of the student group, his rights, duties and responsibilities, functions and directions of his work. It is also studies the types of educational work plans, methods of educational work planning and requirements, peculiarities of mentoring abroad, analysis and development of educational work plans.

**Organization of practical training.** The issues of organization of practical training, types of practices, preparation of a work program, writing and defense of a report, occupational safety and health enforcement instructing, development of guidelines for practical training, methods of conducting practical training are covered.

**Methods of forming student team.** The subject involves mastering the knowledge of the problem of team formation in psychological and pedagogical studies, differentiation of such concepts as «group», «collective», «community», characteristics of the collective, its types and functions, stages of development of the team, Makarenko's methods, interpersonal relationships in the team, modern views on the principle of individual's upbringing in the collective and with the help of it, ways of uniting members in the collective, the reasons for the decline of team cohesion and ways to combat it.

**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.

**Philosophy of education.** This subject forms students' ability to adequately understand and solve the theoretical, methodological, ideological problems of modern education. It provides a holistic view of the content and issues of the philosophy of education; its basic concepts and categories; it reveals the specifics of education as a phenomenon of culture and social institute in its historical and socio-cultural dynamics; deepens the study of current socio-philosophical problems of modern education; provides a philosophical analysis of the current state of global education and national one in particular, the prospects of its development and interaction with other spheres of society.

**Fundamentals of Business-Designing.** The peculiarities of the fundamentals of business-designing, basic information on starting own occupation and own business are considered. The essence of economic phenomena and processes in business-designing, a comprehensive analysis of the agrarian sector and the international market of agricultural products, the exchange and consumption of material and spiritual goods in society.

**Social work in entertainment sphere.** 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.

**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.

**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 reservoirs of viral infections in agrocoenoses.

**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; 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.

**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.

**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.

**Soil science.** 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.

**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 biospherelogy (global ecology). The course considers applied environmental issues – natural, social and technological.

**Economics of enterprise.** Economic mechanism of functioning of an enterprise, formation and use of its resource potential with aim of optimization of economic performance.

**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 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.

**Selection and seed growing.** 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.

**Monitoring of environment.** Formation of knowledge about the system of state monitoring of the environment, monitoring of atmospheric air, water objects of agrosphere, 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.

**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.

**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.

**Phytodesign.** 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.

**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.

**Chemistry and biogeochemistry.** 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.


**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 in 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.

**Composition and colour study.** Composition, painting, anatomy, perspective, drawing and chromatics are studied by future artists.
Commodity science of raw materials and products of crop production. The subject studies the processing technologies of cereals, legumes, oilseeds, sugar beets, hops, tobacco, fruit and horticultural products, its short-term and long-term storage; the classification, range, basic properties, conditions of use, labeling principles, rules for the transportation and storage of major groups of raw materials and products of crop production.

Ecological analysis. 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.

Forestry. Practical silviculture. Systems and ways of forest cutting. Cutting inspection. Increase of forest productivity.

Organizing 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.

Basics 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.

Horticulture. The study of discipline involves the formation of knowledge and skills in the production of fruits and berries, which are the basis of nutrition and raw materials for processing enterprises, the study of fruit and berry plants - their importance, morphological and biological features, methods of reproduction, rootstock, structure of fruit nursery and technology of cultivation saplings, planting of fruit plantations, systems of maintenance and cultivation of soil in gardens, fertilizers and irrigation of plantations, formation and pruning of fruit trees, care of the crop and others types of work in gardens, preparation and technology of harvesting, biological features and technology of growing berry crops.

Ecological protection of agrosystems. Formation of knowledge about structure and functioning of agricultural ecosystems, methods of optimization of agricultural landscapes, prognosis of the development of crop diseases in agrocoenosis; ability to identify and keep records of pests and pathogenic agent, forecast their development, optimize agro landscape based on contour land reclamation organization of agricultural lands.

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.

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.
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.

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.

Environmental protection and sustain environmental management. 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.

Forest crops. 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.

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.

Decorative floristic. 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.

Machinery in crop production. Training of a specialist that is capable of using mechanical equipment on the farmsteads and on individual farms, leased enterprises or farmers unions. The subject of the study is the mechanized technological processes of crop production; methods of experimental determination and theoretical calculation of the main technical and operational indicators of machine-tractor units and of complete equipment, its adjustment in the conditions provided by the manufacturer.

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.

**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.

**Decorative art.** For centuries various art handicrafts have been formed: they are wood and bones carving, painting, embroidery, vybiyka, ceramics, casting, stamping, weaving, vytnannya. 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.

**Machinery in animal husbandry.** To acquaint students with the basics of designing flow-technological lines in animal husbandry, installation and commissioning, production and technical operation, research of equipment and technological processes.

**Ecological legislation.** 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.

**Basics of forest exploitation.** 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.

**Auditing.** 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.

**Computers and computer technology in agriculture.** The study of the subject involves theoretical and practical training of students in the use of computers and computer technologies for solving specific agricultural problems. The objectives of the discipline are to master the methods and tools of modern information analytical technologies and systems used in agriculture and based on knowledge of hardware and software, methods and tools for data structuring, multidimensional analysis, modeling, forecasting, preparation of information for decision making, preparation of reports and visualization of the obtained results.
Bachelor
Field of Knowledge «Journalism»
Specialty «JOURNALISM»
Educational-professional program «Journalism»

Form of Training: Licensed number of persons:
  – Full-time 50
  – Part-time –

Duration of Training 4 years
Credits ECTS 240
Language of Teaching Ukrainian, English
Qualification Bachelor in Journalism

Concept of training

Training of specialists in the field of "Journalism" is determined by the urgent need to provide the agrarian sector with highly qualified journalists, competitive in the national and international labor market, the formation of key competencies necessary for self-fulfillment, active citizenship, which meet the needs of the state, the economy and the goals of the Ukrainian village, national, cultural and universal values.

Practical training

Practical training is an integral part of the training of journalists and is carried out according to the schedule of the educational process. Practical training of students is carried out on appropriately equipped bases, among which the SSD NULES of Ukraine "Velykonytinske educational and research farm named after O.V. Muzychenko", "Educational and Research Farm "Vorzel", "Agronomic Research Station", "Boyarska Forest Research Station"; TRC Branch of the National Television Company of Ukraine "Ivano-Frankivsk Regional Directorate" KARPATY", "Literary Ukraine" newspaper, All-Ukrainian cultural weekly "Word of Enlightenment", LLC "General policy publication "Rural News", newspaper of protection of Ukrainian peasants' interests", the National public policy magazine "Volunteer", Translation Agency “Lingvo-Apostille", Ministry of Agrarian Policy and Food of Ukraine, Ukrainian Research Institute of Agro-Industrial Complex, Informational Agency “GO AZOV-PRESS”, Apollo (Exchange Program in Agriculture and Ecology, Germany), StizhtingUtwisseling (SUSP) Netherlands Educational Programs Agency, Association "Friendship Without borders “(France).

Proposed Topics for Bachelor theses

1. The discourse of news on the radio in the post-truth era.
2. Special analytical talk-shows on Ukrainian television.
3. Podcasts of the Ukrainian market: typologization, topics, features.
4. The theory of frames and news on television.
5. The propaganda of Russia narratives in the Ukrainian media.
Academic rights of Graduates: graduates can apply for Master’s Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.

Employment of Graduates

A journalism specialist can work in mass media: newspapers, magazines, television and radio companies, online publications, press and news agencies, press centers, public relations services.
## Bachelor’s Program and Curriculum in Specialty «Journalism»

### Educational-professional program «Journalism»

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of tests ECTS</th>
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#### 1. GENERAL TRAINING CYCLE

**Compulsory components EPP**

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<td>CC 2</td>
<td>Information and civil law</td>
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<td>CC 3</td>
<td>Practical stylistic</td>
<td>4</td>
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<tr>
<td>CC 4</td>
<td>Oral Broadcasting Technique</td>
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<tr>
<td>CC 5</td>
<td>Culture of broadcasting</td>
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<td>CC 6</td>
<td>Modern Ukrainian language in media</td>
<td>13</td>
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<td>CC 7</td>
<td>Contemporary Ukrainian literature and critique</td>
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**Compulsory components EPP by decision of the Academic Council of the University**

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<td>CCU 2</td>
<td>Foreign language (for professional purposes)</td>
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<td>CCU 3</td>
<td>Philosophy and logic</td>
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<td>CCU 4</td>
<td>Safety of Vital Activity</td>
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<td>CCU 5</td>
<td>Basics of the scientific research</td>
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<td>CCU 6</td>
<td>Physical education</td>
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#### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components EPP**

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<td>CC9</td>
<td>New Media</td>
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<td>CC10</td>
<td>Audiovisual Production</td>
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<td>exam</td>
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Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

**Ukrainian and world culture.** Culture of primitive time. Culture from the times of the Ancient East to the time of the Enlightenment. European culture of the nineteenth and twentieth centuries. Culture of Kievan Rus. Ukrainian culture of the Lithuanian-Polish period (XIV-first half of the XVII century). Culture of Ukraine from the second half of the XVII century. to the beginning of XX century. Culture of Ukraine in 1917 - the first half of the 40-ies.

**Information and Civil law.** Information law as an independent branch of legal science in the context of human rights and freedoms and in the implementation of European standards in modern media. The concept of civil law of Ukraine, its subject and methods of legal regulation. Sources of Information and Civil Law of Ukraine. Trends of development of civil legislation of Ukraine. The concepts, 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.

**Practical stylistic.** Theoretical basis of stylistics, actual problems of modern science; stylistic standards of the Ukrainian language.

Culture of broadcasting. Functions and features of broadcasting. Knowledge of orphocratic, accentuation and lexical norms of modern Ukrainian literary language. Requirements for the work of the journalist on the air. The technique of broadcasting. Development of skills and abilities of phantom respiration, articulation, speech accent, diction.

Modern Ukrainian language in media. 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.

Contemporary Ukrainian literature and critique. This course offers a survey of selected phenomena in contemporary Ukrainian literature. The course examines works in all genres—poetry, drama, and prose—but will concentrate on works of long prose. Readings will include a number of trend-setting works and a few that have become classics.

Compulsory components by decision of the Academic Council of 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.

Foreign language (for professional purposes). 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.

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.

Basics of the scientific research. Principles and methods of organization and implementation of scientific research. General requirements for the execution of scientific research. Ability to work with scientific sources.

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.

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components


New media. This course interrogates the impact of digital technologies on individuals and society and provides students with the skills and knowledge to be able to think critically and creatively about new media. Students will learn about diverse digital media techniques and processes, including coding and hacking, web design, animation, digital ethnography and more. Through a hands-on approach, student will gain an understanding of the social, cultural and economic roles of new media, and explore what it is like to work in the new media industries.

Audiovisual Production. The course prepares students to create different kinds of audiovisual media, such as interactive media and films. This course focuses on audiovisual theory and practice with classes such as documentation and audiovisual communication, digital culture, analysis of image significance and audiovisual production. It also gives students the technical knowledge needed to be involved in both the creation and dissemination of audiovisual media.


The History of Ukrainian and World Journalism. Periodization of the journalism formation on Ukrainian lands. Information about the main personalities, individual periods, about their works. Trends in the press systems development. Features of the journalism development. Features of press editions evolution from the initial prototypes to the modern

**Literary editing.** Basic concepts of the course "Literary editing"; literary editing and text style; genre text form; linguistic norm and variances; text segmentation and literary editing; clarity of the text; verbalization of the emotional in the text; literary editing of text elements.


**The theory of mass communication.** The theory of mass communication is the first fundamental-professional discipline that studies the functions of communication, its role and place in the life of society, the natural channels of information transmission, the methods of influence through different sign systems, the state of development of modern mass media, and directs for the conduct of media research, critical thinking, orientation in the problems of the national information space of Ukraine and issues of Ukraine's joining into the international information space. Communicative activity. Communication models. Typology of communicative effects. Criteria for effective communication. Structuring information as a condition for the effectiveness of communication. Information comfort. Types and forms of communication technology.

**The Theory of Journalism.** Basic concepts in the field of journalism. Methodical features of the specialty. Fundamentals of professional ethics and journalism genreology. Legal principles of communicative activity. Methodology of journalism. Types and rules for collecting information. Contemporary philosophical concepts, the subject of which is journalism.

**Theory of work and text.** Concept of the text. Categories of text. The integrity of the text. Linguistic analysis of journalistic text. Linguistic personality, artistic image and image of the author. The main features of journalistic work. The composition of the work. Genre types of journalistic creativity.

**Media Criticism.** History of the establishment and development of media criticism as a special field of journalism in Ukraine and abroad. Forms and genres of works of national media criticism. Functions of media criticism, their correlation with the basic functions of journalism. Specialized editions, sites, web pages.

**Information genres in journalism.** The principles and functions of mass media activities are considered; the most important state-building aspects of the functioning of mass communication in Ukraine; the main principles of the journalist's creative process; criteria for the division of journalistic works into genres; destination, genre features, varieties of information genres; basic requirements for materials of information genres; factors of the influence of mass media on the creation and establishment of the Ukrainian information space; the most important aspects of propaganda by means of mass communication of the essence of the Ukrainian national idea of state formation and the formation of people's sense of patriotism, national dignity, civic courage.

**Analytical journalism.** Formation and professionalism. The traditional system of journalistic genres and the modern classification of analytic genres. Review, correspondence, article, letter, modern genres.
Optional components

**Optional components by specialty (block 1)**


**Media Management.** The course will enable students to identify and analyze strategic and operational problems and opportunities, understand, quantify and access national and international media markets, and use foresight and planning techniques to understand and respond to change. As well as being able to manage complex media projects, students will also have the skills to engage in strategic direction setting, deploy business-planning skills, and excel in leadership and implementation.

**Media convergence.** Multimedia genres. Multimedia formats. Formation of informational content for Internet media. Features, methods and techniques for creating multimedia news, reports and interviews. Technology for creating publications for various media platforms. Promotion of the media product.


**Media Analysis and Media Psychology.** The course offers an introduction to the ideology, rhetoric and modes of address adopted by the media, and emphasises appropriate analytic strategies for encountering various media genres and formats. Attention is particularly paid to visual culture, demonstrating how fiction, fact and everyday imagery operate in audiovisual as well as textual contexts, across different platforms.

**International Human Law.** The discipline involves studying the standards of objective, impartial journalism, oriented to the protection of human and citizens’ rights and freedoms, communication and legal sphere. The discipline involves studying the standards of the Council of Europe, its criteria and practices for the protection of human rights, the place and role of journalists in maintaining these standards.


**Visual Communication.** The course focuses on communication through visual aids. The diverse field of Visual communication includes drawing, animation and multimedia, sketching, advertising, graphic designing, writing, editing, video editing, photography, film production and editing etc.

**Optional components by specialty (block 2)**

**New media and Technologies.** This course interrogates the impact of digital technologies on individuals and society and provides students with the skills and knowledge to be able to think critically and creatively about new media. Students will learn about diverse digital media techniques and processes, including coding and hacking, web
design, animation, digital ethnography and more. Through a hands-on approach, student will gain an understanding of the social, cultural and economic roles of new media, and explore what it is like to work in the new media industries. The course covers the range of journalists' duties, methods, forms and methods of activity on the Internet as well as legal basis of journalistic activity in Ukraine.

Marketing and Political Communications. The course gives to students a systematic description of the basic concepts, theories and activities related to marketing and political communication.

Digital Humanities. As primary sources of information are more frequently digitized and available online than ever before, how can we use those sources to ask new questions? This course will show students how to manage the many aspects of digital humanities research and scholarship. The course will help them bring their area of study or interests to new life using digital tools.

International Human Law. The discipline involves studying the standards of objective, impartial journalism, oriented to the protection of human and citizens’ rights and freedoms, communication and legal sphere. It The discipline involves studying the standards of the Council of Europe, its criteria and practices for the protection of human rights, the place and role of journalists in maintaining these standards.

Internet news. This course will develop and enhance an understanding of the global field of journalism. Students will learn best practices and ethical standards for newsgathering processes and compiling a news report through hands-on projects, peer-to-peer feedback, and issue exploration. Student will also study journalism's impact on societal issues and trends, plus explore career opportunities in social media and Internet multimedia.

Media Analysis and Media Psychology. The course offers an introduction to the ideology, rhetoric and modes of address adopted by the media, and emphasises appropriate analytic strategies for encountering various media genres and formats. Attention is particularly paid to visual culture, demonstrating how fiction, fact and everyday imagery operate in audiovisual as well as textual contexts, across different platforms.


Visual Communication. The course focuses on communication through visual aids. The diverse field of Visual communication includes drawing, animation and multimedia, sketching, advertising, graphic designing, writing, editing, video editing, photography, film production and editing etc.
Bachelor
Field of Knowledge «Social and behavioral sciences»
in Specialty "PSYCHOLOGY"
Educational-professional program «Psychology»

Form of Training: Licensed number of persons:
– Full-time 50
– Part-time 50

Duration of Training:
– Full-time 4 years
– Part-time 5 years

Credits ECTS 240

Language of Teaching: Ukrainian, English

Qualification: Technologist in Agronomy

Concept of training

The training of a psychologist is determined by the demand of our State for specialists providing psychological assistance to an individual and a group. The professional activity of a specialist of this type involves diagnostics, examination and correction of psychological properties and states, mental processes, various types of human activities in norm and pathology taking into account the features of age stages, developmental crises, risk factors, belonging to gender, ethnic, professional and other social groups.

Practical training

Practical training is carried out in accordance with the curriculum schedule, on the basis of certified practice bases, including: centers of practical psychology, counseling centers, social services, law institutions, health and care institutions.

Proposed Topics for Bachelor theses

1. Psychological means of development of emotional intelligence in younger students
2. Emotional intelligence as a factor of social and psychological adaptation of personality.
3. Typical Intra-Personal Conflicts at a Young Age.
4. Psychological-pedagogical means of development of soft-skills competencies in the students of scout organizations
5. Gender features of frustration tolerance in adolescence.

Academic rights of Graduates: graduates can apply for Master’s Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.

Employment of Graduates

A graduate can work in educational institutions of all levels and types, enterprises and organizations, health care institutions, centers of practical psychology, social services, consulting centers, research institutions, penitentiary and law institutions for the provision of expert services at the job-place (according to the classification of professions in Ukraine): 2445.2 - psychologist, 2445.2 - practical psychologist, 1232 - chief psychologist, 2412.2 - professional on personnel development, 5131 - tutor.
Bachelor`s Program and Curriculum in Specialty «Psychology»
Educational-professional program «Psychology»

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## Annotations of Components in the curriculum

### 1. GENERAL TRAINING CYCLE

#### Compulsory components

**Ukrainian for Professional Studies and Documentation.** Lexical, spelling, morphological, syntactic norms of modern Ukrainian literary language. Voice over speech and its features. Speech composition. Lexical and grammatical means of the relevant reproduction of communicative intentions in writing. Requirements for professional texts: objectivity of presentation, logic, consistency, completeness of information, accuracy, conciseness, standard.

**History of Ukrainian Statehood.** The study of discipline involves a deep understanding of the history of the emergence and formation of the Ukrainian people and Ukrainian statehood by students, the establishment of a national identity, the coverage of the political activity of classes and social groups in Ukraine at certain stages of historical development. The general mission of the course – to maintain the processes of humanization of higher education, the integration of professional, social and humanitarian training; to improve the content of the course structure, using the achievements of world and national philosophy, universal values and train highly skilled specialists in the agro-industrial complex.
**Philosophy.** The course teaches a system of knowledge of such sections of philosophy as ontology, epistemology (theory of knowledge), social philosophy, historical types of philosophy, revealing the essence of the relation "man - the world" in its most basic manifestations. The phenomenon of religion, its origin, the main religious studies concepts, the history and the present situation of the tribal, early and late national religions, the main provisions of the doctrine and cult of the most influential religions in the world.

**Compulsory components by decision of the Academic Council of the University**

**Foreign language for professional purposes.** Phonetic rules of a foreign language. Audition and Speaking. Lexical minimum (categories of being, their properties and relations, geographical, demographic, economic and political data) of a specific country of the world, the language of which is being studied. The lexical minimum of regional and social differences between Ukraine and the country of study. Reading for a grasp and reading for the gist at a specified time without a dictionary. Studying reading with a certain number of unknown words (using the dictionary). Abbreviations of foreign-language professional terms in a specific professionally-oriented field. Structure of dialogue of general scientific character. Features of the dialogue of professionally-oriented character. Lexical minimum on business contacts, business meetings, meetings. Elements of foreign language information interpreting in the process of business interaction.

**Engineering Psychology.** Information interaction between a person and a machine. The operator's activity in the system "man - machine". Mental phenomena and their characteristics in the operator's activities. Operation in special conditions. The perception of information by the operator. Psychophysiological peculiarities of the receiving information process. Saving and processing information by the operator. Psychological aspects of the problem of decision making. General characteristic of the functional states of the operator. Emotional states of the operator. Fatigue of the operator. Control of the functional state of the operator. Taking into account the operator's limiting possibilities and questions of his psychological support.

**Psychology of inclusive education.** The purpose is to get acquainted with the methods of psychological support of children with special needs in the adaptation period of their entry into the educational space. The important directions and methods of work of psychologist on formation of educators' and tutors tolerance in treating children with special needs are considered. Formation of comprehension of individual peculiarities in development and educational needs of children, ways of establishing a productive interaction of children with special needs with a group of peers (in the preschool group, school class, student group).


Physical Education. The aim is to shape the young person's physical culture and the ability to realize it in social and vocational training and in the family. The objective of the discipline is to strengthen the health of students and to develop physical abilities that are appropriate for the professional activity of a future specialist.

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components


History of psychology. The main stages of the development of psychological knowledge. The development of psychological ideas within the philosophy and the natural sciences. The formation of psychology as an independent science and the development of its branches. The main tendencies and concepts of scientific psychological thought from the end of the nineteenth century to the present day.

Age psychology. Subject, history of development and methods of age psychology. Conditions, driving forces and basic laws of mental development in ontogenesis. The problem of periodization of age development in the works of foreign and domestic psychologists. Features of mental and personal development in infancy, early childhood and preschool age, in younger school, teenage, youthful age, adolescence and old age.


Social Psychology. Subject and methods of research in social psychology. Patterns of communication and interaction of people. Socio-psychological aspects of interpersonal relations of personality. Psychology of small and large social groups. The development of personality in the system of interpersonal relationships. Psychological patterns of social group management. Applied research in social psychology.

Workshop on general psychology. Methods of study of cognitive mental processes. Methods of study of higher cognitive processes and processes of goal-setting. Methods of research of emotional-volitional processes and mental states. Methods of studying the personality and its individual psychological peculiarities.


Mathematical methods in Psychology. This course covers the structure of probability theory, which is the foundation of statistics, and provides many examples of the use of probabilistic reasoning. It discusses the most commonly encountered probability distributions, both discrete and continuous. The course considers random sampling from a population, and the distributions of some sample statistics. It deals with the problem of estimation - the process of using data (in the best possible way) to learn about the value of the unknown parameters of a model. Finally, it discusses hypothesis testing - the use of data to confirm or reject hypotheses formed about the relationship among (economic) variables.

Experimental psychology and the fundamentals of scientific research. This is an undergraduate psychology course designed to provide students with knowledge about and hands-on practice with experimental research methods in psychology. Students will learn how to plan, conduct, and analyze their own experimental research, and how to communicate the results of their research to others. Students will develop the knowledge and skills to apply and critique the scientific method in future courses.

Psychological correction. Psychocorrection as a direction of activity of a psychologist. The concept of psycho correction. Types of psychocorrections, principles, goals and objectives of this work, the main models of psycho-correction practice; methods and techniques of psychocorrection, ways of correction of cognitive psychical processes, emotional disorders and violations of the communicative sphere; features of work with different age groups. Features of constructing psycho-correction programs.

Psychology of communication. Familiarization of students with basic approaches to communication analysis; providing understanding of nature, patterns and mechanisms of this process, forming skills of possession of communication techniques; readiness to apply the technology of effective communication in different situations of practical activity, ability to apply methods of self-regulation in the process of communication.


Psychological features of the use of drugs. Ethical principles of the clinical psychologist. General principles of the organization of medical and psychological assistance. The work of a clinical psychologist in various types of medical institutions. Psychological features of patients with various somatic diseases. Basics of psychosomatics.


**Gender Psychology.** Gender research as an interdisciplinary research and educational practice. Concept of psychological gender and gender identity. Categories of masculinity and femininity as meaningful components of gender identity. The main stages of the formation of gender identity. The concept of gender stereotypes, their typology and content. The theory of social design of gender. The concept of gender and gender. Reasons for matching gender expectations. Differential socialization as a monotonous phenomenon. The process of forming the psychological sex of a person, his mechanisms. Differences in the intrapersonal dynamics of the formation of sexual identity for boys and girls. The concept of "gender" and "sexual socialization". Differentiated pedagogical influence on the formation of gender behavior of the individual.

**Ethics and Family Life Psychology.** Adopting a Family Relationship framework; Family Development: Continuity and Change; Gender, Culture, and Ethnicity Factors in Family Functioning; Interlocking Systems: the individual the family and the community; The Development and Practice of Family Therapy Growth of Family Therapy; Professional issues and Ethical Practices; Human Validation Process Model; Emotionally Focused Therapy; Symbolic-Experiential; Psychodynamic Approaches; Objects Relations Transgenerational Approach; Genogram and other topic presentations and all papers due Structural Family Therapy; Strategic Family Therapy; Behavioral/Cognitive; Solution-Focused Brief Therapy; Narrative Therapy.

**Optional components**

**Optional components by specialty (block 1)**


**Psychology of Religion.** The purpose of the course studying is to provide students with knowledge about the specifics of the religion phenomenon in psychological study and aspects of religiosity psychological analysis, as the essential state of world perception of a man; to form the ability of the analysis of socio-psychological religion study results.


Non-governmental sector and volunteering. The discipline deepens the notion of non-governmental (non-profit) organizations (NGOs). The goal is to provide knowledge about the specifics of NGOs solving social work tasks; their kinds, types, features of management, indicators of viability, peculiarities of work with volunteers. Concept, structure, importance of non-governmental organizations in solving social problems. Legal support of the activities of non-governmental organizations that carry out various types of social work. Interaction and cooperation of non-governmental organizations with mass media and business in social work. The specifics of the interaction of a non-governmental organization with the government and state structures. Volunteer Service of the Non-Governmental Organization of the Social Sphere. Experience of social work of non-governmental organizations.

Social Tutorship. The role of the social tutorship in society, the social significance of tutors activity in the context of inclusive education introduction. The content of the main technologies developed by modern socio-pedagogical and psychological sciences and the practice of working with disabled children. Methods of work of the social guardian with children at various life restrictions.


Psychology of management. Psychology of management as a branch of psychological science. Structure and functions of management activity. Levels of psychological and managerial problems (psychological aspects of the activities of the head, the organization as the subject and object of management, the interaction of the head with members of the organization). Socio-psychological theories of management. Psychology of the personality of the head. The content of the concepts "leader" and "leader" in the management of the organization. Managerial role of manager. The level of formation of the psychological readiness of the future specialist to management. Striving for leadership and leadership ability. Approaches to leadership learning. Forms of power and influence. Typology of management styles. Levels of organization management decisions. The main styles of implementation of the process of making managerial decisions. The concept of motivation and its role in management. Theories of labor motivation. Psychology of collective management. Psychological characteristics of the group as a structural element of the organization. Phenomena of group life. Psychology of business communication. Manipulative technologies in management. Psychology of conflict management. Gender aspects of professional activity.

Basics of psychotherapy. Psychotherapy at the present stage, the place of psychotherapy in the system of psychological knowledge. Types and forms of psychotherapeutic work of a psychologist. Purpose, task and principles of psychotherapy. Professional training of psychotherapist, competence and qualification questions. The model of psychology and client interactions within different psychotherapeutic schools. Requirements for the personality of the therapist within different therapeutic areas and schools. Professional deformation of the personality of the psychologist. Professional ethics and responsibility of the therapist. Clinical and physiological bases of psychotherapy. Psychological principles of psychotherapy. Medical model of psychotherapy, interaction in the system "patient-patient". Psychological model of psychotherapy, interaction in the system "psychologist-client". The main stages of the psychotherapeutic process. Problems studying the client's personality. The problem of the limits of psychotherapeutic influence. Criteria for the effectiveness of psychological care. Preparatory stage of therapeutic work, stage of adjustment for interaction, first meeting with the client, diagnostic stage, therapeutic stage, stage of control.
Methodology of conducting psychological examination in various branches of psychology. The purpose is to get acquainted with the main issues of psychological examination, the technology of its conduct and preparation; the formation of the ability to independently plan and conduct psychological examination, to choose the appropriate methods for studying the personality traits, to identify and study personal qualities, individual psychological and psycho-physiological features of the personality.

Methodological and theoretical problems of psychology. The goal is to form students’ ideas about the theoretical foundations (explanatory principles, the subject of science) and the methodological basis of psychology; development of the ability to build a research methodology. The tasks of studying the discipline are: awareness of the prospects of the development of psychology as a scientific knowledge; understanding of the main methodological problems of psychology; study of the principles of psychological science, explaining the laws of the existence of the subject of psychology; understanding of the basic and metascientific categories of science.

Methodology of teaching psychology. Goals, content, principles of teaching psychology; methods, receptions and forms of training; Planning of the educational process in psychology.

Philosophy of Psychology. The philosophical and methodological content of classical and newest actual problems of psychological science. From the standpoint of unity and interaction of philosophy and psychology, the socio-psychological phenomena are covered. Knowledge of philosophical methodology will improve the activities of the psychologist, help him to build and regulate the relationship with people, deep understanding of the motives and their actions, to know the objective reality, to correctly evaluate it and use the results obtained in practice.

Political psychology. Psychological characteristics of the subjects of politics. Psychology of political culture. Political culture concepts, its levels and types. Political psychology of personality. The problem of political activity of the individual. Political socialization. Psychology of political power and power relations. Political elite and counterelite in modern society. Political leadership as a psychological phenomenon. Psychology of the groups in politics. Elemental mass political behavior and mass political consciousness. Political stability and political conflict. Psychology of political violence.
Bachelor
Field of knowledge "Education / Pedagogy"
in specialty "Physical education and Sports"
Educational and professional program "Physical education and Sports"

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<tr>
<th>Form of Training:</th>
<th>Licensed number of persons:</th>
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<tr>
<td>– Full-time</td>
<td>50</td>
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<td>– Part-time</td>
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</table>

Duration of Training 4 years
Credits ECTS 240
Language of Teaching Ukrainian
Qualification sports coach, physical education teacher

Concept of training

The training of bachelors in the fields of physical education and sports aims to meet the needs of the individual, society and the state in specialists who are able to carry out educational and sports activities at a high professional level.

The relevance of the specialty "Physical education and Sports" and the need for professional staff is due to the need to maintain the proper level of health of the population of Ukraine, insufficient number of specialists in education, sports, mass, rehabilitation, insufficient promotion of sports and fitness among the population, irrational use of health-improving opportunities of recreational sphere.

Training under the educational-professional program "Physical education and Sports" is aimed at providing the applicant with higher education (hereinafter - HEI) the acquisition of knowledge, skills and abilities in the fields of physical culture and sports and methods of sports training at the appropriate level, further education and research.

Practical training

Practical training in the specialty 017 "Physical Culture and Sports" is carried out according to the schedule of the educational process and involves students of pedagogical practice, coaching practice in secondary schools, SDYUSHOR, CYSS, SHVSM, universities, sports and fitness clubs, lessons and bulk training, as an assistant teacher, coach, teacher and independently.

The purpose and content of practical training are students to master modern methods and forms of organizing the work of teachers and coaches in sports, the formation on the basis of acquired skills and abilities necessary for professional activity, independent decision-making, creative use of their knowledge in practice.

Form of certification of applicants for higher education

Certification of applicants for the first (bachelor's) level of higher education in the specialty 017 Physical Culture and Sports is carried out in the form of a comprehensive qualifying examination in accordance with the Regulations on the examination commission of the university.

Students who have fulfilled all the requirements of the training program (curriculum) are admitted to the certification. A set of knowledge, skills, abilities and other competencies acquired by a person in the process of training is submitted for certification.
Certification is carried out openly and publicly. Based on the results of successful certification, a standard document is issued on the award of a bachelor's degree with the award of a qualification: bachelor of physical culture and sports, sports coach, physical education teacher.

**Academic rights of graduates** - can continue their studies in specialties and educational (educational-professional or educational-scientific) master's training programs, the names of which are given in table. 1.2 of section 1.3 of this Catalog.

**Employment of Graduates**

The graduate prepares to work as a physical education teacher in a secondary school, as well as to perform pedagogical functions with school-age children in other educational institutions. As a coach, the work is performed in the staff of sports and fitness clubs, children's sections, in professional sports, the Olympic movement.

According to the National Classification of Occupations DK 003: 2010, specialists who have been educated under the educational and professional program "Physical Culture and Sports" can hold the following primary positions:

- 2331 - Teacher of a secondary school;
- 2320 - Teacher of a secondary school;
- 3475 - Sports coach (federation, national team or club team, sports school, etc.);
- 3475 - Coach-teacher in sports (sports school, section);
- 3475 - Instructor-methodologist of sports school;
- 3475 - Aerobics instructor;
- 3475 - Instructor-methodologist of the gym (hall);
- 3475 - Fitness trainer;
- 3414 - Leisure specialist;
- 3414 - Instructor of health and sports tourism (by type of tourism);
- 3475 - Instructor of combat and physical training;
- 3475 - Instructor-methodologist in physical culture and sports;
- 3475 - Instructor-methodologist in industrial gymnastics
Bachelor’s Program and Curriculum
in Specialty "Physical education and Sports"
Educational-professional program "Physical education and Sports"

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of tests ECTS</th>
<th>The final control</th>
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<td>1. GENERAL TRAINING CYCLE</td>
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<td></td>
<td><strong>Compulsory components EPP</strong></td>
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<tr>
<td></td>
<td>CC 1 General theory of health</td>
<td>4</td>
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<tr>
<td></td>
<td>CC 2 Pedagogy</td>
<td>6</td>
<td>test, exam</td>
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<tr>
<td></td>
<td>CC 3 Human anatomy and sports morphology</td>
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<td></td>
<td>CC 4 Biochemistry</td>
<td>4</td>
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<td></td>
<td>CC 5 Computer technology and information technology in physical education and sports</td>
<td>4</td>
<td>exam</td>
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<td><strong>Compulsory components EPP by decision of the Academic Council of the University</strong></td>
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<tr>
<td></td>
<td>CCU 1 Ukrainian (professional)</td>
<td>4</td>
<td>exam</td>
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<td></td>
<td>CCU 2 Foreign language (for professional purposes)</td>
<td>8</td>
<td>test, exam</td>
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<td></td>
<td>CCU 3 Philosophy</td>
<td>4</td>
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<td></td>
<td>CCU 4 History of Ukrainian statehood</td>
<td>4</td>
<td>exam</td>
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<td></td>
<td>CCU 5 Ethno-cultural studies</td>
<td>4</td>
<td>exam</td>
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<td></td>
<td>CCU 6 Ethics and aesthetics</td>
<td>4</td>
<td>exam</td>
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<td>CCU 7 Occupational and life safety</td>
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<td>exam</td>
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<td>CCU 8 Legal culture of the individual</td>
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<td></td>
<td>2. SPECIAL (PROFESSIONAL) TRAINING CYCLE</td>
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<td></td>
<td><strong>Compulsory components EPP</strong></td>
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<tr>
<td></td>
<td>CC 6 Introduction to specialty</td>
<td>4</td>
<td>exam</td>
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<tr>
<td></td>
<td>CC 7 History of physical culture</td>
<td>4</td>
<td>exam</td>
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<tr>
<td></td>
<td>CC 8 Theory and methods of physical education</td>
<td>12</td>
<td>test, exam</td>
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<td></td>
<td>CC 9 Theory and methods of teaching gymnastics</td>
<td>6</td>
<td>test, exam</td>
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<td></td>
<td>CC 10 Theory and methods of teaching athletics</td>
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<td>test, exam</td>
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<td>CC 11 Theory and methods of teaching swimming</td>
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<td>CC 12 Theory and methods of teaching sports games</td>
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<td></td>
<td>CC 13 Theory and methods of teaching strength sports</td>
<td>6</td>
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<td></td>
<td>CC 14 Theory and methods of teaching martial arts</td>
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<td>exam</td>
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<td></td>
<td>CC 15 Basics of tourism and orienteering</td>
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<td>exam</td>
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<td></td>
<td>CC 16 Olympic and professional sports</td>
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<td>CC 17 Sports metrology</td>
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<td>CC 18 Theory and methods of coaching in the chosen sport</td>
<td>12</td>
<td>test, exam</td>
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<td></td>
<td>CC 19 Human physiology and motor activity and sports</td>
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<td></td>
<td>CC 20 Biochemistry of muscular activity</td>
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<td>CC 21 Biomechanics of sport</td>
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<td>CC 22 Psychology of sport</td>
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<td>CC 23 Sports medicine</td>
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<td>CC 24 Adaptive sport</td>
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<td><strong>The total amount of Compulsory components</strong></td>
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<td><strong>Optional components EPP</strong></td>
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<td><strong>Optional components by specialty</strong></td>
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<tr>
<td>OB 1.1</td>
<td>Fundamentals of sports management and marketing</td>
<td>4</td>
<td>exam</td>
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<tr>
<td>OB 1.2</td>
<td>Regional management in the field of physical education and sports</td>
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<tr>
<td>OB 1.3</td>
<td>Sports facilities and training equipment</td>
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<td>exam</td>
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<tr>
<td></td>
<td>Modern fitness technologies</td>
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<td></td>
<td>Fundamentals of medical knowledge</td>
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<td>exam</td>
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<tr>
<td></td>
<td>Diagnosis and monitoring of athletes’ health</td>
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Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

General theory of health. Mastering the basic methods of diagnosing the level of health and the principles of maintaining a healthy lifestyle; mastering skills to form a motivation for a healthy lifestyle; skills of overcoming stressful situations, the negative impact of hypodynamics, malnutrition, bad habits; use the acquired knowledge of the general theory of health and healthy lifestyle and use it in further professional activities. Ability to adapt their current practice to changing conditions. Ability to find ways to continuously improve the quality of rehabilitation services.
Pedagogy. Familiarization of students with the basics of pedagogical science, principles, methods, forms of organization of education and upbringing, ideological and methodological principles of education, conceptual foundations of higher education reform in Ukraine in the process of entering the European educational space; acquisition by students of the corresponding pedagogical knowledge, abilities and skills which application will promote effective professional activity.

Human anatomy and sports morphology. Creating a theoretical foundation for the development of subjects of the medical-biological cycle and disciplines of professional orientation for the training of specialists in physical education and sports; preparation of students for scientifically substantiated training process taking into account morphological features of the athlete's body structure.

Biochemistry. The discipline "Biochemistry" contains modern ideas about the chemical composition and properties of compounds that are part of living organisms, and about their transformations that occur in the process of life. The course considers the general laws of metabolism, metabolism of the main classes of biomolecules, mechanisms of realization of genetic information, biochemistry of intercellular communications, integration of metabolism and its regulation.

Computer technology and information technology in physical education and sports. The discipline is aimed at forming the general and professional competencies defined by the educational-professional program, the ability to identify and effectively solve complex specialized and scientific problems and practical problems in the field of physical culture and sports with the help of modern information technologies.

Compulsory components by decision of the Academic Council of the University

Ukrainian language for professional purposes. Lexical, orthographic, morphological, syntactic norms of modern Ukrainian literary language. Sounded speech and its features. Speech composition. Lexical and grammatical means of relevant reproduction of communicative intentions in writing. Requirements for professional texts: objectivity of presentation, logic, consistency, completeness of information, accuracy, conciseness, standardity.

Foreign language for professional purposes. Phonetic rules of a foreign language. Audition and Speaking. Lexical minimum (categories of being, their properties and relations, geographical, demographic, economic and political data) of a specific country of the world, the language of which is being studied. The lexical minimum of regional and social differences between Ukraine and the country of study. Reading for a grasp and reading for the gist at a specified time without a dictionary. Studying reading with a certain number of unknown words (using the dictionary).

Philosophy. The course teaches a system of knowledge from such sections of philosophy as ontology, epistemology (theory of knowledge), social philosophy, historical types of philosophy, revealing the essence of the relationship "man - the world" in its most basic manifestations. The phenomenon of religion, its origin, basic religious concepts, history and current situation of tribal, early and late national religions, the main provisions of the creed and cult of the most influential religions in the world.

History of Ukrainian statehood. The study of the discipline involves a deep assimilation and understanding by students of the history of the origin and formation of the Ukrainian people and Ukrainian statehood, the establishment of national identity, coverage of political activities of classes and social groups in Ukraine at certain stages of historical development. The general vocation of the course is to train highly qualified specialists of the agro-industrial complex on the basis of the processes of humanization of higher education, integration of professional and socio-humanitarian training, improvement of the course structure, use of world and national thought achievements, universal values.

**Ethics and aesthetics.** In the formation of a holistic, harmoniously developed personality of future professionals, an important place is given to ethics and aesthetics. Ethics is a part of practical philosophy that studies the phenomenon of morality, its structure and nature, the laws of moral formation of society and the individual. Explaining the spiritual and moral world of the individual and influencing its formation, ethics is an integral part of the worldview.

**Occupational and life safety.** Analysis of the negative impact of various hazards on human life and health, as well as methods, means and measures to protect against them; legal and organizational issues of the basics of labor protection, the basics of industrial sanitation and occupational health, the basics of safety of production processes, fire safety.

**Legal personality culture.** Formation of legal thinking and cultural style of lawful behavior in everyday life both in interpersonal relations and in communication with representatives of judicial and law enforcement agencies.

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

**Compulsory components**

**Introduction to specialty.** "Introduction to the specialties of physical education and sports" is designed to teach students all specialties in the field of "physical culture and sports": physical education, physical rehabilitation, Olympic and professional sports. The main task of the course is to form in the freshman a certain system of knowledge and ideas about the field of his future professional activity and about the profession of specialists in the field of physical culture. While studying the course, the student gets acquainted with the system of higher education in Ukraine, with the peculiarities of obtaining professional education and the specific conditions of study at the university.

**History of physical culture.** The history of physical culture is one of the profile disciplines and is a specific field of historical and pedagogical knowledge. It is an important part of the science of physical education. The subject of its study is the general patterns of origin, formation and development of physical culture and sports at different stages of society. The content of the subject history of physical culture and sports includes the study of means, forms and methods, ideas, theories and systems of physical culture. Physical culture is seen as an organic part of all human culture, education and training of people to prepare them for work and military activities. History traces the evolution of physical culture and sports from ancient times to the present day.

**Theory and methods of physical education.** As a discipline, the theory and methods of physical education is the main general theoretical profile subject of professional education of specialists in physical education and sports. This subject is of paramount importance in the formation of the professional credo of the future specialist, his professional views and beliefs. The introduction of this discipline is due to the need for a holistic understanding of various scientific and practical knowledge about physical education as a multifaceted social phenomenon that is spreading in such areas of human life as education, recreation, rehabilitation, tourism, sports and more.
Theory and methods of teaching gymnastics. The purpose of teaching the discipline "Theory and methods of teaching gymnastics" is: • formation of a system of knowledge on the history, theory and methods of teaching; • mastering the technique of basic gymnastic exercises; • acquisition by students of the necessary knowledge, skills and abilities to prepare them for the professional activity of a physical education teacher of a secondary school.

Theory and methods of teaching athletics. The purpose is to provide theoretical-methodical and practical training of students for teaching athletics in future professional activities. Objectives of the discipline: to enrich students' knowledge of techniques and tactics of performing athletics exercises; to master the technique and methods of teaching different types of athletics, as well as methods of developing physical qualities by means of athletics.

Theory and methods of teaching swimming. Purpose - involves students studying the theory and methods of teaching swimming, mastering the techniques of basic types of swimming exercises, acquiring the necessary knowledge, skills and abilities for independent pedagogical work.

Theory and methods of teaching sports games. Teaching the discipline is aimed at students studying theoretical material, acquaintance and mastering the necessary skills of technical actions with and without the ball at the curriculum, mastering the methods of initial training in basic techniques and tactical interactions, as well as organizing and conducting competitions.

Theory and methods of teaching strength sports. Teaching the discipline aims to form basic professional and pedagogical knowledge, skills, abilities that provide theoretical and practical training of a specialist in the field of Fis.

Theory and methods of teaching martial arts. The course provides the provision of theoretical, methodological and practical training of students for future professional activities. The purpose, structure and content of the discipline "Theory and methods of teaching martial arts" are revealed. The place and significance of this discipline in the training of future physical education teachers and trainers are considered. Students need to master issues related to: the history of martial arts; the evolution of the rules of martial arts; basic concepts; terminology, classification and systematics of martial arts; organization and content of martial arts classes.

Basics of tourism and orienteering. Sports tourism occupies a special place among other types of tourism as the most effective form of acquiring knowledge, skills and abilities necessary for domestic, industrial and military activities. In the process of sports tourism, educational, health-improving and sports tasks are solved at the same time.

Olympic and professional sports. The discipline "Olympic and professional sports" studies the origins of Olympic and professional sports; their impact on the individual and society as a whole and the impact of socio-economic status of society on the development of Olympic and professional sports; relationships of Olympic and professional sports with other spheres of social activity; finding out the optimal organizational structure of Olympic and professional sports and their legal and economic bases; substantiation of effective systems of competitions, methods of selection and training of amateur athletes and professional athletes, etc.

Sports metrology. The purpose of teaching the discipline is to form in students a system of knowledge, skills and abilities in the field of sports measurements, which is a necessary element of professional development. The main objectives of the discipline are: - teaching students the metrological foundations of modern theory and practice of integrated control in sports and physical education; - learning methods and mastering the skills of independent work with measuring instruments; - bringing the content of university studies closer to the demands of future practical activities of students.
Theory and methods of coaching in the chosen sport. The purpose of teaching the discipline is to provide students with knowledge about the basics of training, methods of teaching motor actions and the development of motor skills, the basics of building a training process in the chosen sport.

Human physiology and motor activity and sports. Principles of life of the human body. Mechanisms of functioning of separate systems (nervous, blood circulation, breath, digestion, deception of substances, and energy, thermoregulation, endocrine glands, higher nervous activity, musculoskeletal system). Physiological methods of human research. The purpose of the discipline is to form in future specialists in physical education and sports knowledge about the physiology of muscle activity, to reveal the physiological essence of sports and fitness, its functionality, which can and should be realized in the process of purposeful physical education.

Biochemistry of muscular activity. Describes the chemical structure, norms of consumption, metabolic processes of the most important substances of the body in the norm, during muscle activity and some pathological conditions. The biochemical mechanisms of excitation, contraction and energy supply of skeletal muscles, as well as metabolic changes during various physical activities and the possibility of using metabolic parameters to assess the functional state of the human body are revealed.


Psychology of sport. Study of the psychology of human personality as a holistic structure consisting of socially conditioned (orientation) and biologically conditioned (temperament, inclinations, instincts, simple needs) aspects of personality; parties due to life experience and upbringing / habits, knowledge, skills and abilities /, individual features of mental functions (their qualitative originality and level of development). Principles and content of the psychology of sports, patterns of their practical use in the training of athletes of different qualifications. Combination of fundamental and applied psychology according to the specifics of the industry. Practical use of knowledge in psychology in the process of physical education and sports training. Methods of studying and correcting the mental aspects of the athlete's personality.

Sports medicine. The discipline is aimed at forming students' theoretical knowledge and developing practical skills in conducting therapeutic physical culture and, depending on the type of disease, to use the basic and auxiliary techniques of sports medicine. Discipline that studies the impact on the human body of physical culture and sports; develops and substantiates a rational method of physical exercises and sports training for the purpose of comprehensive harmonious development, strengthening of health and increase of working capacity of the person.

Adaptive sport. The purpose of the discipline is to acquaint students with the problems, prospects, features of the organization and development of adaptive sports in the world and in Ukraine.
Optional components

Optional components by specialty

Fundamentals of sports management and marketing. Providing a holistic view of the student about the industry system of management and marketing; mastering the principles, methods and technologies of management of physical culture and sports organizations in the modern market conditions of Ukraine.

Regional management in the field of physical culture and sports. Features of management in the field of physical culture and sports of administrative-territorial units of different levels. In the context of decentralization in Ukraine, it is important to systematize the accumulated management experience in various segments of administrative-territorial units, including in the field of physical culture and sports.

Sports facilities and training equipment. The purpose of teaching the discipline is to acquaint students with existing sports facilities and training equipment. The main objectives of the discipline are to acquire knowledge and practical skills necessary for the operation of sports facilities and sports equipment, to know the basics of organization of design and construction of sports facilities, to know the specifics of sports facilities and their nature, basic terms and names, requirements for safe operation, settlements, be able to rationally operate sports facilities and equipment, build simple sports facilities, etc.

Modern fitness technologies. Topical issues of using fitness programs and technologies in the process of physical education, methodological features of sports training, rational use of recreation and mass sports, methods of conducting physical rehabilitation classes for student youth are considered.

Fundamentals of medical knowledge. Fundamentals of medical knowledge is one of the leading disciplines of theoretical and practical training of students of higher educational institutions, as in the system of national education the most important task today is to ensure the full development of children and youth, protection and promotion of health as a prerequisite for future citizens of Ukraine.

Diagnosis and monitoring of athletes’ health. The purpose of studying the discipline is for students to master the theoretical foundations and practical skills in determining the state of physical, mental, intellectual and spiritual health. To teach students to evaluate a person’s lifestyle, to diagnose the peculiarities of human lifestyle disorders.

Pedagogical skills of specialists in physical culture and sports. Pedagogical systems, pedagogical processes and pedagogical technologies in modern pedagogical knowledge. Technology of pedagogical communication. Technology for resolving pedagogical conflict and pedagogical problems. Tolerance as an important condition for the formation of teacher skills. Technology of self-regulation of the physical and mental state of the teacher. Technology of teacher self-development.

Improving skills in the chosen sport. To form in future specialists professional and pedagogical knowledge, skills and abilities that will be necessary for independent work in various institutions of the system of physical education and sports, as well as to increase the level of sportsmanship in the chosen sport.

Pharmacological support in the field of physical culture and sports. The main task of pharmacology in physical education and sports, which is to study the mechanisms of action, routes of administration, indications, contraindications and side effects of drugs. The sections of the discipline of pharmacodynamics, pharmacokinetics and drug toxicology and the system of current and final control are analyzed.

Basics of rational and sports nutrition. The purpose of teaching the discipline is to acquaint students with the nutrition of a healthy person and athlete, the chemical composition of food and their impact on human health, the basics of therapeutic nutrition,
sports nutrition, recommendations for dietary therapy for various diseases, nutrition technology in sports training.

**Fundamentals of research work.** The purpose of the course is to master the main directions and issues of research and development. Characteristics of planning, organization, research methods and design of student research papers.

**Research methods in physical education and sports.** The main theoretical and practical issues of conducting scientific work with children at school, in other sports and educational institutions are highlighted. The main provisions of the methodology are systematically stated, the methods of scientific research in the field of physical education and sports are characterized.

**Fundamentals of age and gender psychology in physical education and sports.** It is shown the need to take into account the age and gender approach in physical education not in terms of gender policy of equal rights for men and women, but in terms of studying their psychosocial characteristics to create adequate organizational and methodological conditions in the process of physical education.

**Age anatomy and physiology in physical education and sports.** Formation in future teachers of knowledge about age features of a structure and functions of a children's organism; about the laws that underlie the preservation and strengthening of the health of the student, maintaining his high efficiency during various types of educational and work activities; about hygienic requirements to the organization of educational work in initial classes.

**Therapeutic physical culture.** The material on the general methods of therapeutic physical culture and massage is presented, the basic information on physiology, biomechanics and medical action of physical exercises is given. Particular attention is paid to the description of private methods of therapeutic gymnastics for many diseases that are common in injuries. Complexes of physical exercises for patients, and also healthy persons of mature, elderly age and children are resulted.

**Basics of general and sports massage.** Provide future specialists in physical rehabilitation with the amount of knowledge, skills and abilities on scientifically sound (taking into account the state of health, age changes and individual characteristics) performance of certain massage techniques, massage of certain parts of the body, construction and massage procedure

**Moving games and entertainment with teaching methods.** Providing theoretical, methodical and practical preparation of students for future professional activity. Knowledge of the content of educational material and its planning in accordance with the program of secondary schools. Perfect execution of basic techniques and tactical actions of mobile games. Formation of a system of knowledge on the basics of technique and tactics of mobile games in educational, extracurricular work on physical education in the school section, health camp, place of residence, acquisition of knowledge and organizational skills of sports holidays "Merry Starts" and others.

**Recreational games.** The discipline for students majoring in "Physical Culture and Sports" is aimed not only at mastering theoretical material, but also at improving students' practical skills and forming their professional competencies, which are extremely important in today's competitive labor market.

**Basics of physical rehabilitation.** Providing students with the necessary level of theoretical and methodological knowledge about rational methods and means of their professional activity, to reveal the structure and content of this activity, the conditions for successful implementation of educational, upbringing and health tasks in the process of physical rehabilitation.

**Basics of kinesitherapy.** The purpose of the discipline - to form students' skills in the use of kinesitherapy in the process of physical rehabilitation of patients with diseases of the senses, musculoskeletal system, neurological diseases. The task of studying the
discipline involves acquainting students with the types of exercises, mechanotherapeutic means, the principles of kinesitherapy classes.

**Theory and methods of youth sports.** Formation of students' system of knowledge, skills and abilities on the basics of the theory and methods of youth sports, features of the content of the system of sports training of young athletes, taking into account age periodization of training loads, which is a necessary element of becoming a specialist.

**Fundamentals of teaching modern sports.** Physical culture is developing rapidly, non-traditional sports are increasingly being introduced into the lives of athletes, so specialists in physical culture and sports need to be in the trend of modern change. The course will tell about non-traditional and modern sports, their place in modern sports and everyday activities, as well as the importance for certain categories of people, will form students' knowledge, skills and abilities to teach modern sports.

**Hygienic support in the field of physical culture and sports.** Influence of various factors related to physical culture and sports on the health of the person who engages in them: environmental conditions in which exercise continues; organization and content of physical exercises; volume and intensity of physical activity in the process of physical exercises; nutrition characteristics; technological support and equipment of athletes.

**Pre-medical care in emergencies.** The subject of this course is emergency pre-medical care in life-threatening conditions, the goal - ways and methods of first aid in emergency and terminal conditions. Studying the subject will help students know: the causes of serious conditions and emergency care, the principles and rules of pre-medical care for injuries, bleeding, accidents; be able to: perfectly master resuscitation techniques in threatening conditions, provide emergency care for acute diseases of the cardiovascular and respiratory systems, poisoning, animal bites, snakes, insects. The acquired knowledge is important in everyday life, in everyday life, at work, in any conditions.

**Marketing of sports and health activities.** The purpose of teaching the discipline "Marketing of sports and health activities" is to equip students with theoretical knowledge and practical skills necessary for scientifically sound marketing activities in the field of sports and health.

**Organization and methods of mass physical education.** The general bases of the theory and methods of organization of sports and mass work, forms and technologies of organization of sports and mass work and physical culture and health work in the system of education in Ukraine, at work, at the place of residence, with persons with disabilities are taught.

*Optional components by Student’s Choice*

**Basics of classical aerobics and step aerobics.** The classification and summary of directions and types of aerobics, various movements of aerobics and technique of their performance are given; the properties of musical accompaniment of classes, construction of sets of exercises, content and structure of classes are considered; the organizational bases of training are offered, which include planning and types of control of the health-training process; testing of those who are engaged in classical and step aerobics has been clarified; the peculiarities of communication skills and abilities necessary for the training of specialists, safety requirements in the classroom, etc. are highlighted.

**Basics of strength fitness.** Formation of students' scientific and practical knowledge based on the understanding of general and special information about the educational and training process of strength fitness, its impact on the processes occurring in the human body (with different indicators of physical activity), followed by the use of this knowledge for theoretical and practical introduction in the system of physical education and sports.
Basics of health fitness. Modern achievements in the field of health fitness are considered; the importance of physical activity and fitness as the most important and necessary elements for maintaining human health and prevention of various diseases is shown; The components of health fitness, construction of fitness classes, the latest norms of physical activity, modern knowledge on methods of assessing body composition and weight control, the basics of a balanced diet, prevention and coping with stress are considered in detail.

2.17. EDUCATION AND RESEARCH INSTITUTE
OF CONTINUOUS EDUCATION AND TOURISM

Director – Mariya Kulayets, PhD, Professor, Honored Economist of Ukraine

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 specialties:

242 Tourism

Educational-professional Program “Tourism”

Guarantor of the educational and professional program – Dariya Basyuk, Doctor of Economics, Associate Professor
Tel.: (044) 527-80-61 e-mail: daruna.b@gmail.com

Graduating department:

Tourism, Hotel and Restaurant Business and Extension
Tel.: (044) 527-80-61 e-mail: agroconsalt_chair@nubip.edu.ua
Head of Department – Dariya Basyuk, Doctor of Economics, Associate Professor.

241 Hotel and Restaurant Business

Educational-professional Program "Hotel and Restaurant Business"

Guarantor of the educational and professional program – Iryna Kudinova, PhD in Economics, Associate Professor
Tel.: (044) 527-80-61 e-mail: ikudinova@nubip.edu.ua

Graduating department:

Tourism, Hotel and Restaurant Business and Extension
Tel.: (044) 527-80-61 e-mail: agroconsalt_chair@nubip.edu.ua
Head of Department – Dariya Basyuk, Doctor of Economics, Associate Professor.

281 Public Management and Administration

Educational-professional Program «Public Management and Administration»

Guarantor of the educational and professional program - Doctor of Public Administration, Associate Professor Volodymyr Oliinyk

Graduating Department:

Public Administration and management of innovative activity
Tel.: (044) 527-86-53 E-mail: innovation_chair@nubip.edu.ua
Head of the Department – Doctor of Economics, Professor Olha Vytvytska
Bachelor
Field of Knowledge "Service sphere"
in the Specialty "TOURISM"
Educational-professional program "Tourism"

Form of Training: Licensed number of persons:
– Full-time 60
– Part-time 30
Duration of Training: 4 years
– Full-time educational and professional program
– Part-time
Credits ECTS: 240
– educational and professional program
Language of Teaching Ukrainian, English
Qualification Bachelor of Tourism

The Concept of Training

Formation of general and professional competencies for successful professional activity in the field of recreation and tourism on the basis of balanced nature management, including in protected areas and in rural areas, creation of opportunities for further employment of graduates in various tourism enterprises, their careers and professional growth.

The educational program is focused on training professionals who must have: modern methods and means of organizing the tourism business on the basis of sustainable development, including in protected areas and in rural areas.

The program involves the use of the latest interactive computer technology, training at leading universities in Europe and America, attracting foreign teachers to give lectures.

Practical Training

Professional practice of students is an important part of the educational process for the training of qualified specialists in tourism. During the training and industrial practice students get acquainted with recreational and tourist facilities of Ukraine and foreign countries. During the internship, students perform the professional duties of managers, instructors, guides, animators, guides-translators and administrators of hotels, resorts, tourist and hotel complexes, work in travel agencies and tours, advertising and information centers. green tourism projects.

Proposed Topics for Bachelor theses

1. Formation of potential of competitiveness of the tourist enterprise.
2. Introduction of ecological management at the hotel enterprise.
3. Marketing policy of the tourist enterprise and ways of its improvement.
4. Formation of competitive advantages of the tourist enterprise.
5. Management of production behavior of the staff of the tourist enterprise.
6. Team management in personnel management of a tourist enterprise.
7. External and internal methods of control in hospitality establishments.
8. Features of selection and adaptation of personnel at the enterprises of sphere of tourism.
10. IT technologies in the organization of work of managers of tourist enterprises.
11. Modern methods of development of the workforce.
12. Formation of leadership qualities in tourism business managers.
13. Modern methods of planning the activities of tourism enterprises on the basis of IT - technologies.
15. Formation of the brand of the tourist enterprise.
16. Internet - marketing in modern tourism enterprises.
17. Modern office - management of tourist enterprises.

**Academic rights of Graduates:** graduates can apply for Master’s Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.

**Employment of Graduates**

Specialists are trained for organizational and managerial, economic, commercial, investment and research activities in the field of tourism. Graduates work at enterprises and organizations in the field of tourism of various forms of ownership and types of management, including green tourism as managers of travel agencies and complexes, travel agencies, etc., specialists and managers in administrative work, logistics, marketing, commercial and international departments, personnel managers, owners of green estates, etc.
## Bachelor’s Program and Curriculum
### in Specialty "Tourism"

**Educational-professional program "Tourism"**

<table>
<thead>
<tr>
<th>Code n/a</th>
<th>Components of the educational and professional program (education disciplines, course projects (paper), practice, qualification work)</th>
<th>Amount of credits ECTS</th>
<th>The final control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. GENERAL TRAINING CYCLE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compulsory Components of EPP</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CC 1 Economic Theory: Basics of Economic Theory</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td></td>
<td>CC 2 Information Systems and Technologies</td>
<td>7</td>
<td>test, exam</td>
</tr>
<tr>
<td></td>
<td>CC 3 History of Ukrainian Culture</td>
<td>3</td>
<td>exam</td>
</tr>
<tr>
<td></td>
<td>CC 4 Foreign Language</td>
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<td></td>
<td>Compulsory Components of the EPP by the Decision of the Academic Council of the University</td>
<td></td>
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<tr>
<td></td>
<td>CC 1.1 History of Ukrainian statehood</td>
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<td>exam</td>
</tr>
<tr>
<td></td>
<td>CC 1.2 Ecology</td>
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<td>exam</td>
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<tr>
<td></td>
<td>CC 1.3 Physical Education</td>
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<td>test</td>
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<tr>
<td></td>
<td>CC 1.4 Occupational and Life Safety</td>
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<td>2. CYCLE OF SPECIAL (PROFESSIONAL) TRAINING</td>
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<td>Compulsory Components of EPP</td>
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<tr>
<td></td>
<td>CC 5 Entry to the Profession</td>
<td>3</td>
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<tr>
<td></td>
<td>CC 6 Legal Regulation of Tourist Activity</td>
<td>5</td>
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</tr>
<tr>
<td></td>
<td>CC 7 Geography of Tourism (tourist resources of Ukraine)</td>
<td>4</td>
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<tr>
<td></td>
<td>CC 8 Fundamentals of Tourism</td>
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</tr>
<tr>
<td></td>
<td>CC 9 Active Tourism</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td></td>
<td>CC 10 Business Ethics</td>
<td>5</td>
<td>exam</td>
</tr>
<tr>
<td></td>
<td>CC 11 Statistics in Tourism</td>
<td>5</td>
<td>exam, coursework</td>
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<tr>
<td></td>
<td>CC 12 Geography of Tourism (tourist geography)</td>
<td>3</td>
<td>exam</td>
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<tr>
<td></td>
<td>CC 13 Organization of the Hotel Industry</td>
<td>7</td>
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<td></td>
<td>CC 14 Organization of Restaurant Business</td>
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<td></td>
<td>CC 15 Economics of a Tourist Enterprise</td>
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<td>exam</td>
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<tr>
<td></td>
<td>CC 16 Tourist Local Lore</td>
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<td>CC 17 Museum Studies</td>
<td>3</td>
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<td>CC 18 Information Systems and Technologies in Tourism</td>
<td>6</td>
<td>exam</td>
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<td></td>
<td>CC 19 Tour Processing</td>
<td>6</td>
<td>test, exam, coursework</td>
</tr>
<tr>
<td></td>
<td>CC 20 Organization of Excursion Activities</td>
<td>5</td>
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<tr>
<td></td>
<td>CC 21 Marketing</td>
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<td>exam</td>
</tr>
<tr>
<td></td>
<td>CC 22 Tourism Management</td>
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<td>test exam, coursework</td>
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<tr>
<td></td>
<td>CC 23 Recreology and Spa Business</td>
<td>5</td>
<td>exam</td>
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<td></td>
<td>CC 24 Marketing in Tourism</td>
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<td>exam</td>
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<tr>
<td></td>
<td>CC 25 International Tourism Business</td>
<td>5</td>
<td>exam</td>
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<tr>
<td></td>
<td>CC 26 Standardization and Certification in Tourism</td>
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<td>exam</td>
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<tr>
<td></td>
<td>CC 27 Analysis of Tourism Enterprises</td>
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<tr>
<td></td>
<td>CC 28 Business Planning in Tourism</td>
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<td>Optional Components of EPP</td>
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<tr>
<td>OC 1</td>
<td>Second Foreign Language (German)</td>
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<tr>
<td>OC 2</td>
<td>Second Foreign Language (French)</td>
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<tr>
<td>OC 3</td>
<td>Organization of Animation Activities</td>
<td>3</td>
<td>exam</td>
</tr>
<tr>
<td>OC 4</td>
<td>Basics of Consulting</td>
<td>3</td>
<td>exam</td>
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<tr>
<td>OC 5</td>
<td>Rhetoric and Psychology of Communication</td>
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<tr>
<td>OC 6</td>
<td>Communicative Management</td>
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CURRICULA AND PROGRAMS OF BACHELOR DEGREE

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<th>Code</th>
<th>Course</th>
<th>Credits</th>
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<tr>
<td>OC 7</td>
<td>Specialized Tourism</td>
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<tr>
<td>OC 8</td>
<td>Rural Green Tourism</td>
<td>6</td>
<td>exam</td>
</tr>
<tr>
<td>OC 9</td>
<td>Organization of Transport Trips</td>
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<td>exam</td>
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<tr>
<td>OC 10</td>
<td>Ecological Tourism</td>
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<tr>
<td>CO 11</td>
<td>Accounting and Auditing in Tourism</td>
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<td>exam</td>
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<tr>
<td>OC 12</td>
<td>Insurance in Tourism</td>
<td>7</td>
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</tr>
<tr>
<td>OC 13</td>
<td>Logistics in Tourism</td>
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<tr>
<td>OC 14</td>
<td>Contract and Labor Law</td>
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<td>exam</td>
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<tr>
<td>OC 15</td>
<td>Inventive Tourism</td>
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**Optional components by Student’s Choice**

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<th>Component</th>
<th>Credits</th>
<th>Type</th>
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<tr>
<td>OD 2.1</td>
<td>Optional Discipline 1</td>
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<tr>
<td>OD 2.2</td>
<td>Optional Discipline 2</td>
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The Total Amount of Optional Components 60

**3. OTHER TYPES OF TRAINING**

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<th>Code</th>
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<td>The Military Training</td>
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<tr>
<td>CC 30</td>
<td>Educational Practice</td>
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<td>CC 31</td>
<td>Internship</td>
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<td>CC 32</td>
<td>Certification Exam</td>
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<td>CC 33</td>
<td>Preparation of Qualifying Work</td>
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<td>TOTAL AMOUNT OF EPP (without military training)</td>
<td>240</td>
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</table>

Annotations of Components in the curriculum

**1. GENERAL TRAINING CYCLE**

**Compulsory components**

**Economic Theory: Basics of Economic Theory.** The purpose of studying the discipline is for future professionals to gain sound economic knowledge, forming the logic of economic thinking and economic culture, teaching them basic methods of cognition and analysis of economic processes, the ability to make informed decisions about economic problems related to their future practice.

**Information Systems and Technologies.** Formation of future specialists of modern level of information and computer culture, acquisition of practical skills of work on modern computer equipment and use of modern information technologies for the decision of various problems in practical activity on a specialty.

**History of Ukrainian Culture.** Familiarization of students with the main trends and forms of ethnocultural development of the Ukrainian people from ancient times to the present, analysis and understanding of various phenomena and processes of cultural life of Ukraine.

**Foreign Language.** Formation of general and professionally-oriented communicative speech competencies to ensure effective communication in a professional tourist environment.

**Compulsory components by decision of the Academic Council of the University**

**History of Ukrainian Statehood.** Study of the historical process of creation of the Ukrainian state, formation of the ability to systematically analyze the main stages of development of the statehood of the Ukrainian people and use the acquired knowledge to analyze modern problems of political, national and cultural life of Ukraine.
Ecology. Studying the basics of rational nature management, identifying ways to overcome the current crisis in the relationship between society and nature, the formation of socio-ecological consciousness, a new ethical attitude of man to nature; ability to develop management principles.

Physical Education. Development of physical strength and sports training, formation of healthy lifestyle skills.

Occupational and Life Safety. The purpose of the discipline is to master the theoretical foundations, practical skills and competencies to create safe living and working conditions, effective professional activities through the introduction of norms, rules, technologies of life safety and labor protection in the tourism industry.

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

Entry to the Profession. Preparing students to study at the university in accordance with modern integration processes in international education in the context of the Bologna Declaration, acquaintance of 1st year students with the content of the future profession, the nature and scope of professional activity, the practicalities of tourism enterprises.

Legal Regulation of Tourist Activity. Forms in students a theoretical basis and practical skills of use of modern normative - legal base of realization of tourist activity.

Geography of Tourism (tourist resources of Ukraine). The discipline involves the formation of knowledge, skills and competencies to determine the main tourist regions of the world by type of tourism.

Fundamentals of Tourism. Study of scientific bases of tourism science, formation of necessary knowledge on the organization of tourist trips for experts in the field of tourism.

Active Tourism. Assimilation of theoretical and practical bases of traveling on different routes with active ways of movement; acquisition of specific knowledge and skills in various types of active tourism.

Business Ethics. The discipline aims to provide knowledge about the moral requirements for business relations, modern technological requirements for the main forms of business communication - conversations and negotiations, meetings, etc., the moral principles, norms and rules of etiquette.

Statistics in Tourism. The purpose of the discipline is to provide knowledge, skills and acquisition of competencies for the use of statistical methods for quantitative assessment of phenomena in the field of tourism.

Geography of Tourism (tourist local lore). The purpose of studying the discipline is to acquaint students with the methods and features of a comprehensive study of the tourism industry of countries and regions of the world, data on the main types of tourist and recreational resources, major tourist centers and regions of the world.

Organization of the Hotel Industry. Formation of understanding of essence of hotel economy as a component of sphere of services, mastering by students of theoretical bases of the organization of functioning of the enterprise of hotel economy in the market.

Organization of Restaurant Business. Formation of knowledge on the rational organization of food services, acquisition of practical skills on the internal content, interaction and consistency of technological operations and processes in restaurants.

Economics of a Tourist Enterprise. The aim of the discipline is to acquire knowledge, skills and abilities to solve economic problems in the tourism industry.
Tourist Local Lore. The discipline involves the formation of students on the basis of mastering theoretical and practical knowledge about the features of the regions of the state the ability to independently assess the tourist opportunities of individual territories, the degree of their development and the nature of use in the tourism industry.

Museum Studies. The discipline forms professional theoretical knowledge in the field of museum studies, practical skills and competencies of the organization of museum and exhibition activities.

Information Systems and Technologies in Tourism. Provides for the formation of the necessary theoretical knowledge and practical skills for the construction of modern information systems, their rational use, as well as the introduction of modern information technologies in practical tourism activities.

Tour Processing. Provides for the acquisition of knowledge and systematic thinking on the organization of tour operator business, schemes for its promotion and implementation, the formation of tourist services, documentation of the processes of creation, acquisition, implementation of tours and planned tour packages, organization of tourist services.

Organization of Excursion Activities. Provides for the formation of students' theoretical, professional knowledge and practical skills in planning and organizing excursion services, development and conduct of excursions.

Marketing. Formation of skills and abilities of application of marketing tools. Marketing concept and philosophy. Content and main directions of marketing research and marketing information system.

Tourism Management. Formation of future specialists of modern systemic economic thinking in the field of organization management, taking into account the industry specifics and features of management work in the field of tourism industry.

Recreology and Spa Business. Formation of knowledge about the role and importance of recreational tourism and resorts, the use of resort and recreational potential of Ukraine, their use of healing natural factors, valeological technologies in personal life and professional activities, the formation of motivation for a healthy lifestyle.

Marketing in Tourism. Provides the acquisition of knowledge, skills and abilities to build a marketing management system and the use of marketing tools in tourism.

International Tourism Business. The discipline aims to provide future professionals in the field of tourism with in-depth knowledge of current trends in international tourism business

Standardization and Certification in Tourism. The purpose of the discipline is the formation of knowledge about the theory, etc.

Optional components

Optional components by specialty

Second Foreign Language (German, French). The study of the discipline deepens students' communicative competence in a second foreign language, namely the use of skills, abilities and knowledge of a foreign language in business communication with representatives of other countries on various professional issues related to professional activities in tourism, preparation for international conferences, projects and discussions.

Organization of Animation Activities. Forms in students a theoretical base and practical skills of animation service of tourists in modern world and national tourist business with use of national traditions, holidays, customs, rites, etc.

Basics of Consulting. The purpose of studying the discipline is to acquire knowledge, skills and abilities in providing consulting services in tourism.
Rhetoric and Psychology of Communication. The discipline involves the development of thinking, language skills, mastering the form of effective persuasive communication in non-standard situations of life and professional communication, the formation of skills and abilities of public speaking, developing the ability to create and deliver public speeches.

Communicative Management. The purpose of studying the discipline is to provide future professionals with knowledge about the theory and practice of effective management of communications management, professional communication and the ability to effectively organize meetings, interviews, business meetings and negotiations.

Specialized Tourism. The purpose of studying the discipline is to obtain professional knowledge about modern types of tourism and territorial organization and conditions of development of specialized types of tourism in the regions and countries of the world.

Rural Green Tourism. The purpose of the discipline is to acquire knowledge, skills and abilities in the organization of rural green tourism in Ukraine.

Organization of Transport Services. Formation of knowledge and skills that will allow to use in practice the general principles, methods and techniques of organization of transport services in tourism.

Ecological Tourism. Mastering theoretical knowledge and practical skills of students in solving regional environmental problems of recreational resources, environmental safety of travelers and tourists, environmental hotel service.

Accounting and Auditing in Tourism. The purpose of studying the discipline is to form theoretical knowledge and acquire practical skills in organizing and maintaining accounting and auditing financial statements, as well as using their results as an information base for effective decision-making in the tourism industry.


Logistics in Tourism. Formation of skills and abilities on the mechanism of reproduction of logistic systems of effective management of material flows.

Contract and Labor Law. Formation of a system of knowledge on legal regulation of economic activity, legal regulation of management in the market of tourist services; formation of knowledge about the legal system of Ukraine, as it regulates one of the most important areas of public relations - labor relations of employees and employers.

Inventive Tourism. Formation of students' modern management thinking and professional competencies in the provision of various event services for the tourism and hotel and restaurant industry.
Bachelor

Field of Knowledge "Service sphere"
in Specialty "HOTEL AND RESTAURANT BUSINESS"

Educational-professional program "Hotel and Restaurant Business"

Form of Training: Licensed number of persons:
– Full-time 90
– Part-time –

Duration of Training:
– Full-time educational and professional program 4 years

Credits ECTS:
– educational and professional program 240

Language of Teaching Ukrainian, English

Qualification Bachelor of Hotel and Restaurant Business

Concept of training

Formation of general and professional competencies for successful solution of problems in the hotel and restaurant business on the basis of sustainable development and social responsibility, creating opportunities for employment and self-employment of graduates in various types of hotel and restaurant enterprises, their career development and professional growth. The program involves the use of the latest interactive computer technology, training at leading universities in Europe and America in the framework of academic mobility, attracting best practices and foreign teachers.

Practical Training

The internship of students majoring in "Hotel and restaurant business" is organized at the leading enterprises of the hospitality industry in Ukraine and abroad. During the practice, future professionals master the technological standards, skills and abilities of the service process in all production units of accommodation and restaurants, perform the professional duties of administrators of hotels and restaurants, maids, waiters, animators, receptionists, assistant managers, secretaries, analysts, etc.

Proposed Topics for Bachelor theses

1. Features of design and management of a business hotel 4 * hotel for 300 people in the Kiyv region.
2. Features of design and management of the hotel of resort and recreational purpose 3 * on 100 places in Odesa region
3. Features of design and management of SPA - hotel 5 * for 200 places in Lviv region
4. Features of designing and managing a hostel for 70 people in Kyiv
5. Features of design and management of a motel for 50 people in the Transcarpathian region.
6. Features of design and management of a farmstead for 30 places in Cherkasy region.

Academic rights of Graduates: graduates can apply for Master’s Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.
Employment of Graduates

Specialists are trained for organizational and managerial, economic, commercial, investment and research activities in the field of hotel and restaurant business.

Graduates work at enterprises and organizations in the field of hospitality of various forms of ownership and types of management in the positions of heads of production units in accommodation and restaurants, managers of small hotels and restaurants without management, in the positions of hotel managers, restaurant managers, specialists in recreation, hotel business, restaurant business, sanatorium business, rural tourism development, touristic security, organization of leisure.
Bachelor’s Program and Curriculum in Specialty  
"Hotel And Restaurant Business"  
Educational-professional "Hotel and Restaurant Business"

<table>
<thead>
<tr>
<th>Code</th>
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<th>Amount of tests ECTS</th>
<th>The final control</th>
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1. GENERAL TRAINING CYCLE

Compulsory Components of EPP

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<td>CC 2</td>
<td>Information Systems and Technologies</td>
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<tr>
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<td>History of Ukrainian Culture</td>
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Compulsory Components of the EPP by the Decision of the Academic Council of the University

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<th>Amount of tests</th>
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<td>CC 1.2</td>
<td>Rhetoric and Psychology of Communication</td>
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<td>Physical Education</td>
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2. CYCLE OF SPECIAL (PROFESSIONAL) TRAINING

Compulsory Components of EPP

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<td>CC 5</td>
<td>Entry to the Profession</td>
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<td>CC 6</td>
<td>Fundamentals of Tourism</td>
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<td>exam</td>
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<td>CC 7</td>
<td>Second Foreign Language (German, French)</td>
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<td>CC 8</td>
<td>Food Chemistry</td>
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<td>CC 9</td>
<td>Information Systems and Technologies in GRB</td>
<td>6</td>
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<tr>
<td>CC 10</td>
<td>Legal Regulation of the Industry</td>
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<td>CC 11</td>
<td>Organization of the Hotel Industry</td>
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<td>CC 12</td>
<td>Organization of Restaurant Business</td>
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<td>Technology of Restaurant Products</td>
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<td>CC 15</td>
<td>Hygiene and Sanitation in the Industry</td>
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<td>CC 16</td>
<td>Equipment of Hotel and Restaurant Establishments</td>
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<tr>
<td>CC 17</td>
<td>Design of GR Objects</td>
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<tr>
<td>CC 18</td>
<td>Design of Hotel and Restaurant Facilities</td>
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<td>CC 19</td>
<td>Economy of Hotels and Restaurants</td>
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<td>CC 20</td>
<td>Quality Management of Products and Services in the Hotel and Restaurant Industry</td>
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<td>CC 21</td>
<td>Marketing of GRB Enterprises</td>
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<td>CC 22</td>
<td>Management of Enterprises of GRB</td>
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<td>CC 23</td>
<td>Analysis of the Activities of Enterprises of GRB</td>
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<td>CC 24</td>
<td>Business Planning in the Hotel and Restaurant Industry</td>
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The Total Amount of Compulsory Components 162

Optional Components of EPP

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<td>OC 2</td>
<td>Inventive Management</td>
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<tr>
<td>OC 3</td>
<td>Energy Saving</td>
<td>4</td>
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<td>OC 4</td>
<td>Resort Business</td>
<td>4</td>
<td>exam</td>
</tr>
<tr>
<td>OC 5</td>
<td>Business Law</td>
<td>4</td>
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</tr>
<tr>
<td>OC 6</td>
<td>Catering</td>
<td>4</td>
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</tr>
<tr>
<td>OC 7</td>
<td>Beverage Technology</td>
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<tr>
<td>OC 8</td>
<td>Ethnic Cuisines</td>
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Optional Components by Specialty
Annotations of Components in the curriculum

1. GENERAL TRAINING CYCLE

Compulsory components

**Microeconomics.** The purpose of studying the discipline is to acquire future economic knowledge, future formation of the logic of economic thinking and economic culture, teaching them basic methods of knowledge and analysis of economic processes at the enterprise level, the ability to make informed decisions about business processes of a particular business unit. future practical activities.

**Information systems and technologies.** Formation of future specialists of modern level of information and computer culture, acquisition of practical skills of work on modern computer equipment and use of modern information technologies for the decision of various problems in practical activity on a specialty.

**History of Ukrainian Culture.** Familiarization of students with the main trends and forms of ethnocultural development of the Ukrainian people from ancient times to the present, analysis and understanding of various phenomena and processes of cultural life of Ukraine.

**Foreign Language.** Formation of general and professionally-oriented communicative speech competencies to ensure effective communication in a professional tourist environment.
Compulsory components by decision of the Academic Council of the University

**History of Ukrainian statehood.** Study of the historical process of creation of the Ukrainian state, formation of ability to systematically analyze the main stages of development of the statehood of the Ukrainian people and to use the received knowledge for the analysis of modern problems of state-political and national-cultural life of Ukraine.

**Rhetoric and psychology of communication.** The discipline involves the development of skills and abilities, mastering the form of effective persuasive communication in non-standard situations of life and professional communication, the formation of skills and abilities of public speaking, developing the ability to create and deliver public speeches.

**Physical Education.** Development of physical strength and sports training, formation of healthy lifestyle skills.

**Occupational and life safety.** The purpose of the discipline is to master the theoretical foundations, practical skills and competencies to create safe living and working conditions, effective professional activities through the introduction of norms, rules, technologies of life safety and labor protection in the hotel and restaurant industry.

2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

**Entry to the profession.** Preparing students to study at the university in accordance with modern integration processes in international education in the context of the Bologna Declaration, acquaintance of first-year students with the content of the future profession, the nature and scope of professional activity, the practical activities of the hotel and restaurant industry.

**Fundamentals of tourism.** Study of scientific bases of tourism science, formation of necessary knowledge on the organization of tourist trips for experts in the field of tourism.

**Legal regulation of the industry.** Forms in students a theoretical base and practical skills of using modern necessary legal tools for implementation in the restaurant and hotel business.

**Organization of the hotel industry.** Formation of understanding of essence of hotel economy as a component of sphere of services, mastering by students of theoretical bases of the organization of functioning of the enterprise of hotel economy in the market.

**Organization of restaurant business.** Formation of knowledge on the rational organization of food services, acquisition of practical skills on the internal content, interaction and consistency of technological operations and processes in restaurants.

**Technologies of restaurant products.** Formation of competencies in production technologies in restaurants with specified properties using modern technological means, high quality and safe for both consumers and the environment.

**Engineering and computer graphics.** Development of students’ spatial imagination, abilities to analyze and synthesize spatial forms, development of skills for performing and reading technical drawings, acquaintance with the means of mechanization and automation of graphic works.

**Hygiene and sanitation of the industry.** To provide students with knowledge in the field of nutrition science of healthy and sick people, on the basis of which the technology of the industry and the organization of the restaurant industry are formed and developed.

**Equipment of GRB establishments.** Formation of professional competencies for the effective operation of modern hotel and restaurant business. A characteristic feature of the hotel and restaurant business is the ability to provide a large number of new services and products, and this requires constant updating of equipment.
Design of GRB objects. Training of higher education students in the basics of design of restaurants. Study of theoretical foundations of design; styles in architecture, interior, furniture; rules and recommendations in the design of interiors of restaurants; techniques of computer design and 3-D modeling of virtual interiors, implementation of spatial, color and decorative solutions of interiors of restaurants.

Design of GRB establishments. Formation of professional competencies for the effective operation of modern hotel and restaurant business.

Economy of hotels and restaurants. The aim of the course is to provide theoretical knowledge and practical skills in the economics of hotels and restaurants, as well as the formation of students' ability to think independently and solve practical economic problems.

Quality management and services in the AWG. Formation of students' complex knowledge in the field of quality management of products and services in the hotel and restaurant industry.

Marketing in GRB. Mastering the latest theoretical knowledge on hotel and restaurant management, acquiring practical skills to build a marketing management system of such organizations, which would ensure their effective functioning in a competitive and changing business environment; formation of skills and abilities for the application of marketing tools in hotels and restaurants.

Management of enterprises of GRB. Formation of future specialists of modern systemic economic thinking in the field of organization management taking into account industry specifics and features of managerial work in the hotel and restaurant industry, training of a highly qualified manager who will be able to ensure a high level of management efficiency and competitiveness in a market economy.

Analysis of the activities of enterprises of GRB. The purpose of the discipline is to master students' theoretical provisions for the analysis and evaluation of the hotel and restaurant industry and the acquisition of practical skills to use this knowledge to make management decisions to improve the efficiency of the enterprise.

Business planning of enterprises of GRB. Formation of a system of theoretical knowledge and practical skills in business planning as an element of management of hotel and restaurant enterprises.

Food chemistry. Formation of the future specialists of the system of knowledge and skills necessary for their innovative activity in the field of science and practical use in the food industry, production of new ideas.

Second foreign language (German, French). The study of the discipline deepens students' communicative competence in another foreign language, namely the use of skills, abilities and knowledge of a foreign language in business communication with representatives of other countries on various professional issues related to professional activities in hotels and restaurants, preparation for participation in international conferences, projects and discussions.

Information systems and technologies in GRB. Provides for the formation of the necessary theoretical knowledge and practical skills for the construction of modern information systems, their rational use, as well as the introduction of modern information technology in the practice of hotels and restaurants.

Optional components

Optional components by specialty

Organization of leisure in GRB. Formation of practical competencies for the organization of various types of leisure activities and their content, features of the functioning of the relevant infrastructure to provide different categories of guests with conditions for recreation and entertainment. involvement in the aesthetic values of society.
Business law. Theoretical knowledge and practical skills related to the legal status of business entities and the legal regulation of business in general.

Catering. Formation of students' system of knowledge regarding the principles of organization of work of institutions on the organization of special forms of service.

Beverage technology. Acquaintance with technological processes and quality standards of various types of alcoholic, low-alcohol and non-alcoholic beverages.

Ethnic cuisines. Formation of knowledge about the culture and traditions of nutrition of the peoples of the world; acquisition of technological skills of cooking restaurant products according to national recipes.

Mini-technologies of food production. Theoretical and practical study of the technology of craft food production (bakery, confectionery, alcohol and non-alcoholic products) for the needs of the restaurant industry.

International market of hotel services. Acquaintance with modern tendencies of hotel business in Ukraine and the world, studying of bases of the marketing analysis.

Accounting and auditing of GRG enterprises. The purpose of studying the discipline is to form theoretical knowledge and acquire practical skills in organizing and maintaining accounting and auditing financial statements, as well as using their results as an information base for effective decision-making in the hotel and restaurant industry.

Marketing communications in GRB. Study and mastering by students of theoretical knowledge and practical skills on application, use of means and elements of a complex of marketing communications; organization, planning, management of communicative activity of the enterprise for the purpose of their effective functioning, and also effective sale of production / services for the purpose of acceptance of production, organizational and administrative decisions at the level of modern requirements.

Organization and technology of service. Acquaintance with the basics of the organization of the service process for different categories of consumers, modern standards and technologies for providing quality services in the field of hospitality and restaurants.

Confectionery and baking art. Study of the world experience of outstanding schools of confectionery and baking art and the main directions of their activity.

Bar business and organization of the sommelier. Formation of students' theoretical and practical knowledge and skills in the organization of work and service in bars, as well as the scientific basis of storage and consumption of alcoholic beverages through in-depth study of basic approaches, principles and methods of bartending and sommelier.

Resort business. Acquisition by future specialists of the hotel and restaurant sphere of professional knowledge in the field of historical development and the current state of sanatorium and resort business in Ukraine and the world.

Inventive management. Formation of students' modern managerial thinking and professional competencies in the provision of various event services for the tourism and hotel and restaurant industry.

Energy saving. Formation of students' scientific concept of methods and means of energy saving, planning measures to improve energy efficiency and energy savings in the hotel and restaurant industry.

Communicative management. The purpose of studying the discipline is to provide future professionals with knowledge about the theory and practice of effective management of communications management, professional communication and the ability to effectively organize meetings, interviews, business meetings and negotiations.

Building engineering. Formation of a system of necessary knowledge and skills regarding the types, purpose, scope of use and operation of various types of engineering and technological equipment in the hotel and restaurant industry.
Merchandising. Acquisition of theoretical and practical knowledge on the development and implementation of methods and technical solutions aimed at improving the supply of goods in the city of sale, as well as skills in using marketing methods and tools in the hotel and restaurant industry.
Bachelor
field of knowledge "Public Administration"
in speciality "Public Management and Administration"
Educational-professional program "Public Management and Administration"

Form of education: Licensed volume, Persons:
– day-time EPP 50
– day-time EP (if available)
– extramural

Period of study:
– full-time educational and professional program 4 years
– extramural

ECTS credits:
– educational and professional program 240
– full-time educational and scientific program

Language of education Ukrainian
Qualification of graduates Bachelor of Public Administration

Concept of training

Preparation of specialists for state executive authorities and local self-government bodies, able to solve complex specialized tasks and practical problems in the field of Public Administration or in the process of studying. Specialists of public authorities and local self-government bodies are involved in the implementation of the content of the educational and professional program of bachelor's preparation.

Practical training

Educational and practical training takes place in structural subdivisions of ministries, Cabinet of Ministers of Ukraine, committees of Verkhovna Rada of Ukraine, Kyiv City State Administration, departments and authorities of other public authorities, with which agreements on internship are concluded.

Proposed Topics for Bachelor theses
1. Foreign experience of administrative reform.
2. Development of civil society in Ukraine.
4. Ensuring the control system in public authorities.
5. Constitutional control in public administration.
6. Social mechanism of implementation of public administration.
7. Making and implementation of state-administrative decisions.
8. Planning of the territory of the locality.
9. Public discussion and solving of local issues.
10. Organization of activity of enterprises of communal form of ownership.

Academic rights of Graduates: graduates can apply for Master’s Degree Specialties and Educational (Educational-professional or Educational-scientific) programs specified in Table 1.2 Section 1.3 this Catalog.
Employment of Graduates

According to the current edition of the National Classifier of Ukraine: Classifier of Professions (SC 003:2010 following the amendments made on February 15, 2019) and International Standard Classification of Occupations 2008 (ISCO-08) graduate of the first (bachelor) level of higher education with professional qualification «Bachelor of public management and administration» may employ specialist positions with the following professional titles: Assistants to Heads of Enterprises, Institutions and Organizations (3436.1); executive committee secretary (3431); Secretary of the Central Executive Body (3439); administrative secretary (3431); organizers of record keeping (3435); organizers of record keeping (public institutions) (3435.1); secretary of the executive committee (3431); secretaries of administrative bodies (3431); assistant of a specialist in city and district planning (3439); Assistant Specialist in Productive Forces and Regional Economics (3439); state inspectors (344); personnel inspector (3423); staff organizer (3423); Inspector for supervision of execution of orders (3431); secretary of the executive committee (3431); secretary of the body of self-organization of the population (3431); instructor of the executive committee for organizational work (3439); organizer of nature management (3439); specialist in the organization of household services (3439); security specialist for security restricted information (3439); specialist in information security (3439) and other positions of specialists in central and local executive bodies, positions in local self-government bodies, in structures of non-state entities of civil society and public organizations, in positions of specialists in enterprises, institutions, organizations of various forms of property, managerial and administrative positions in international organizations and their representative offices in Ukraine.
### Bachelor’s Program and Curriculum in Specialty
"Public Management and Administration"
Educational-professional program "Public Management and Administration"

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#### 1. GENERAL TRAINING CYCLE

Compulsory components EPP

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<th>Code</th>
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<td>MC 1.2</td>
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<td>MC 1.3</td>
<td>Law</td>
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Compulsory components EPP by decision of the Academic Council of the University

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<th>Code</th>
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<td>MC 1.5</td>
<td>Philosophy</td>
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<tr>
<td>MC 1.6</td>
<td>Ukrainian language by professional direction</td>
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<td>MC 1.7</td>
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<tr>
<td>MC 1.8</td>
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<td>MC 1.9</td>
<td>Life safety and civil protection</td>
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#### 2. SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components EPP

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<td>MC 2.3</td>
<td>History of public management</td>
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<td>MC 2.4</td>
<td>Sociology</td>
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<td>MC 2.5</td>
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<td>MC 2.6</td>
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<td>MC 2.7</td>
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<td>exam</td>
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<td>MC 2.8</td>
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<td>MC 2.11</td>
<td>State regulation of economy</td>
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<td>MC 2.12</td>
<td>Information systems and technologies by professional direction</td>
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<td>Planning of development of territories</td>
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<tr>
<td>MC 2.14</td>
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<td>MC 2.15</td>
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<td>MC 2.16</td>
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<td>MC 2.17</td>
<td>Public service</td>
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<td>MC 2.18</td>
<td>The rulemaking process and application of legal norms</td>
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<td>MC 2.19</td>
<td>Regional administration and local government</td>
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<td>MC 2.20</td>
<td>Statistics in public administration</td>
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<td>MC 2.23</td>
<td>Anti-corruption policy</td>
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<td>MC 2.24</td>
<td>Strategic management</td>
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The total amount of Compulsory components: 162
### Optional components EPP

#### Optional components by specialty

| SC 1.1 | Record keeping in Public Administration | 5 | exam |
| SC 1.2 | Institutional support of public administration | 4 | exam |
| SC 1.3 | Fundamentals of land management and land cadastre | 5 | exam |
| SC 1.4 | Sustainable development of territories | 5 | exam |
| SC 1.5 | Communication strategies in public administration | 5 | exam |
| SC 1.6 | Personnel management | 5 | exam |
| SC 1.7 | Leadership and team building | 5 | exam |
| SC 1.8 | Public service quality management | 5 | exam |
| SC 1.9 | Management of communal property | 4 | exam |
| SC 1.10 | Public management of innovation | 5 | exam |
| SC 1.11 | Political processes and institutions | 4 | exam |
| SC 1.12 | Change management | 5 | exam |
| SC 1.13 | Project management in public administration | 5 | exam |
| SC 1.14 | European integration and policy of international cooperation | 5 | exam |
| SC 1.15 | Civic competence of a public servant | 4 | exam |

**Total amount** 54

#### Optional components by Student's Choice

| SC 2.1 | Optional discipline 1 | 3 | exam |
| SC 2.2 | Optional discipline 2 | 3 | exam |

**Total amount** 6

**Total amount of Optional components** 60

### 3. OTHER TYPES OF TRAINING

- 1. Military training 23
- 2. Educational practice 6
- 3. Industrial practice 8
- 4. Preparation and defense of qualification work 3
- 5. Attestation Exam 1

**THE TOTAL AMOUNT OF EPP (without military training)** 240

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**Annotations of Components in the curriculum**

#### 1. GENERAL TRAINING CYCLE

**Compulsory components**

**Economic theory.** Fundamentals of knowledge about economics: objective economic laws, their knowledge and application; the essence of the economic category; subject and method of economic theory; methods of knowledge of the economy; functions of economic theory; levels of application of economic laws: economic-theoretical, administrative, practical; economic needs and production capabilities of society; forms of organization of social production; the market as an economic form of organization of social production; market structure and infrastructure; capital, production losses and profits; social reproduction and forms of social product; world economy; forms of international economic relations; economic aspects of global problems; needs as drivers of economic development; types of needs; the law of needs growth; economic resources and their
types; the choice of alternative resources; forms of social production; the genesis of commodity production, its main features and evolution; the essence of money; market economy; competition and monopoly in the market system.

**Informatics.** Structure and general properties of information; methods and technical means of its creation, transformation, storage, transfer and use in various fields of human activity; methods of implementation of information processes; providing theoretical and practical knowledge of the use of computer technology, advanced software and the Internet to search, process, analyze and share information in the global information space; acquaintance with the software that will be the basis for its use in the study of professionally oriented disciplines. Skills in using modern applications: modern IT education in Ukraine, Microsoft educational resources and services, Cisco Internet academy, Google services and products, Internet information resources and catalogs, hardware and software, basics of operating systems, computer networks, The Internet of Things, working with a spreadsheet editor, using a text editor, using cloud services.

**Law.** Concepts and features of law. The concept and essence of scientific approaches to legal thinking. The main areas of concepts that combine theories of understanding law: Normative; Sociological; Moral. Law in a subjective and objective sense. Features of law. Norms of law. The concept of legal norms, their place and role in the regulation of social relations. Structure of legal norms. The concept of the system of law and its main features. Elements of the structure of the system of law: branches of law and sub-branches of law, institutions of law, rules of law. The system of law and the system of legislation. Issues that are determined (established) exclusively by the laws of Ukraine. Systematization of legislation. Characteristics of constitutional, labor, ecological, land, civil, administrative, criminal and family law.

**Compulsory components by decision of the Academic Council of the University**

Annotations of components: History of Ukrainian Statehood, Philosophy, Ukrainian language for professional purposes, Foreign language, Physical education see Section 2.1.

**Life safety and civil protection.** The purpose of the discipline is to provide students with the knowledge and skills to pursue effective professional activity by ensuring the optimal management of occupational safety at enterprises, institutions and organizations, the formation of students' responsibility for personal and collective safety, taking into consideration the risk of technogenic accidents, natural hazards, infectious outbreaks and industrial accidents.

**Basics of Ecology.** The laws of interaction between society and nature, the main environmental problems arising in the modern industrial production, the impact of the changed environment on humans, the means of protection, restoration and rational use of natural resources, environmental quality management based on the modern achievements of science, technology and technology on protection are studied the environment.

**2. SPECIAL (PROFESSIONAL) TRAINING CYCLE**

**Compulsory components**

**Introduction to the speciality.** Public administration and administration as a management system. Public administration: concepts and scientific background. Principles and laws of public administration. Public sphere is the unity of the economic, social and political spheres. Civil society as an object of public administration. Authorities: Public authorities, main functions and powers. Public administration as a process of making,
making and implementing management decisions. Public administration: concepts, basic laws of management.

**Theory of state and law.** State: origin, concept, signs, essence. Scientific theories of the emergence of the state. Constitutional state. Historical prerequisites for the emergence of the rule of law. The concept and basis of the feature of the rule of law. Principles and general features of the rule of law. The basic principles of the rule of law: "separation of powers", the rule of law and law; the principle of “connectedness” of the state with its laws, the principle of mutual responsibility of the state and the citizen, the principle of having a Constitutional Court; the principle of reality of control and supervision over the implementation of law; principle of reality of the rights and freedoms of citizens, principle of high legal culture of population. The main directions of formation of the rule of law in Ukraine. Offenses and legal liability. Offenses: concepts, types.

**History of public management.** Historical prerequisites of the emergence of the first states in the third millennium BC. Chaos theory. The main stages of the evolution of public administration: 1 Period - the inception of the state, 2 Period - the states of the ancient world, 3 Period - the states of the Early Middle Ages, 4 Period - the estate monarchy. The origin and development of public administration in the territory of present Ukraine in: IV-IX centuries (period of formation of East Slavic statehood); IX-XIV centuries (Kiev-Russkiy and Galicia-Volyn period; Old Russian state); XIV-XVII centuries (Lithuanian-Russkiy and Polish period); middle of the XVII century - the second half of the XVII century - Cossack period: the era of the Liberation War of the Ukrainian people; formation of the Cossack Hetmanate and its structure; end of the XVIII century - 1917-stateless period; 1917-1920 - period of liberation struggles of the Ukrainian people; 1920-1991 - management in the Soviet period; 1991 - for this time - development of public administration in independent Ukraine.


**Basics of public management.** The main attributes of the state: the presence of public authority (with the apparatus for management and coercion). Territorial principle of organization of power. General concept of public administration. The concept of "power" and its constituent elements. Management as the essence of power. The concept and general features of management. The emergence and essence of social, political, state and interstate power. Forms of government. Functions of the state. Features of public administration. Political regime as a component of the form of government and political system. Democratic and anti-democratic forms of political regime. Implementation of state power in different types of political regime. Global approaches that assess the prospects for the development of public administration: market-liberal (based on conceptual models of new management); liberal-communitarian (based on the concept of "political networks", the relationship between the political institutions of the state and society); democratic citizenship (special "receptive management" is aimed at serving the citizen, not the client (consumer).

**Managerial decision-making technologies.** The concept of management procedures and individual activities aimed at collecting, moving, storing, processing, analyzing information. Stages of management decisions. The main elements of the stage of preparation for management decisions. Decision-making stage. Stage of solution implementation. Defining the circle of performers. Control measures. Feedback to the object to which the management decision was directed. Selection and decision-making on
continuation or cancellation of the administrative decision. American and European approach to the technology of management decisions.


**Constitutional law.** The Constitution as the main state document that defines the state system, the order and principles of functioning and distribution of powers of authorities. The concept of "constitutionalism" and its role in the activity of a public servant. The concept of distribution of branches of power. The doctrine of the distribution of branches of power. The system of checks and balances in ensuring the principle of separation of powers. Distribution of branches of power in the system of Ukrainian constitutionalism. Separation of power in the Constitution of Pylyp Orlyk (1710) "Legal system and Constitution on the rights and freedoms of the Zaporozhian Army, concluded between Pylyp Orlyk, the newly elected hetman of the Zaporozhian Army and the general officer, colonels, as well as the Zaporozhian Army itself." Organization of state power in the project "Basic Law of Independent Ukraine" by M. Mikhnovsky (1905). Basic concepts of the Constitution of the Ukrainian People's Republic of April 29, 1918. Ensuring the principle of separation of powers in the Declaration of State Sovereignty of Ukraine of July 16, 1990 and the Constitution of Ukraine. Ensuring the freedoms and rights of citizens.

**Local finances and control.** The concept of local and public finances. Local self-government and its role in the formation of local finances. Functions of local finances and basic principles of their organization. Formation of regulatory and legal support of local finances. Financial policy of local authorities. Local budget and its formation. The main sources of local budget revenues: taxes, non-tax revenues, intergovernmental transfers from the state budget. Formation of the revenue base of local budgets. The right of tax initiative. Local government policy in the field of local borrowing. Expenditures and their classification according to the purpose and tasks to be financed. The concept and types of local budget revenues. Theoretical foundations of local taxation. Mechanisms for collecting local taxes and fees. The practice of self-taxation of residents of territorial communities. Local borrowings to local budgets. Intergovernmental relations. Financing local budgets as a tool for successful functioning of local communities. Features of financing of united territorial communities (UTC). Formulation of incomes of UTC. Expenditure planning of UTC. State financial support of UTC.

**Public management.** Public management as a system: elements of the system; subsystem; structure; functions, mechanisms of administration; properties; communication; state of system; process; development; goal; environment. Characteristic features of the system of public administration as a holistic entity. Openness of system and interaction with the external environment. The system of state executive bodies: levels, relationships, powers. The system of local government. The concept of civil society. Regulatory and legal support for the functioning of the public administration system in Ukraine. Principles of management. Organizational structures of public administration as a set of management units located in subordination to ensure the relationship between management and control systems. Types of organizational structures: linear, functional, linear-functional (staff), matrix. Approaches to reforming organizational structures in public administration. National values and national interests in the system of public administration. Management at the local, regional, state, interstate levels. Interstate management entities. World government.
Models of public administration: traditional model; Good Governance; New Public Management; goal management; value management.


**Information systems and technologies by professional direction.** The essence of information systems and their role in public administration and administration. Current state and trends in information technology. Methodology of information systems development, determination of their quality and efficiency. Basic principles of information resources and technology management. Formation of information structure in public authority. Use of integrated automated information systems by public authorities. Determination of basic characteristics of expert systems. The concept of cloud technology, cloud computing and artificial intelligence. Terminology. History of cloud technologies. The main categories of cloud computing services: software as a service (SaaS); platform as a service (PaaS); infrastructure as a service (IaaS). Cloud placement models. Classification of service models. The concept of cloud storage. Advantages and disadvantages of cloud technologies in the activities of public servants.

**Planning of development of territories.** Territorial community as an object of management. Basic models of community development as an open polysystem. Territorial management: essence, approaches, principles and tools of integrated development of territorial community. Mechanisms for collecting information about the nature, components, trends of socio-economic processes in the community, their causes and consequences in the dynamics. Development of program documents for the development of the territory. Mechanisms to stimulate economic development of the territory. Basic concepts and indicators of business and investment climate of the territory, tools and methods of stimulating sustainable development. Approaches to building partnerships with business structures and the community to solve problems of efficient use of territorial resources. Determining the priorities of the territory in the changing conditions of the external and internal environment. Greening of the territory: the concept and need for implementation. Identification of man-made risks and problems of anthropogenic impact on the environment and action planning to minimize them. Management of social processes in order to influence the demographic processes and economic development of the territory.

**Politology.** Structure and functions of political science. Theory of political systems and their elements. Mechanisms of functioning of political power, states, parties, socio-political organizations. Theory of social management: forms and methods of management of socio-political, socio-economic, administrative-legal and socio-psychological processes. Theory of political ideology: the role and functions of ideology in the system of political power. Political theories, concepts, doctrines, features of their implementation and existence in different societies. Politics as a space and process of organizing the interaction of community members; features of the functioning of public authorities and public and political institutions under conditions that correspond to certain political regimes, forms of government and government; the role and place of public servants in the implementation of public policy at various levels of government. The human factor and the subjective factor in the exercise of official authority and the implementation of state policy; features, stages and approaches to political decision making; features of operating values and socio-political guidelines as the basis of ideological currents; the problem of elites and the masses.
Psychology of Management and Conflictology. The concept of the psychological aspect of managerial relations, which function in the process of interpersonal and intergroup interaction of people involved in employment. "Human factor" and its role in the management of the organization. The role of the psychological factor in public administration. Optimal distribution of professional and social roles in the team; informal relations between team members; psychological mechanisms of managerial decision-making; psychological methods of uniting staff around the goals of the organization; methods of improving the style and culture of business relations in public authorities; psychological compatibility of team members; methods of establishing effective interaction between subjects and objects of public administration. Features of application of psychology of management in foreign countries. Conflictology: basic concepts. The essence and structure of the conflict. The main types and kinds of conflicts. Prerequisites and stages of conflict development. Substantive and structural-functional analysis of the conflict. Strategies, tactics and styles of behavior of conflict participants. Psychological methods of overcoming negative emotions in conflict. The essence, rules and methods of resolving and resolving conflicts. Prevention and prerequisites for successful conflict prevention.

Basics of public administration. The essence and concept of public administration. Administration as a bureaucratic method of management with the help of management decisions. Administration as an integral part of public administration. European standards of good administration are formulated in the SIGMA document "Principles of Public Administration". Types of administration: public (state, regional, municipal); corporate (private). Public administration as a regulated activity of subjects of public administration regulated by normative legal documents is aimed at: making administrative decisions; provision of administrative services; implementation of internal administration of the subject of public administration. The concept of administrative acts: individual and regulatory administrative acts. Administrative decision. Administrative service. Public service. Types of management activities: information and analytical; forecasting; organizational and managerial; administrative and technological; communicative and consultative; socio-psychological; research and teaching. The concept of service state. Effectiveness and efficiency of public administration.


The rulemaking process and application of legal norms. The rule-making process in public authorities as a transformation of the principle of the rule of law to ensure the harmonious expression in legal norms of the objective needs of social development. Components of rule-making activity: 1) activity on development, adoption, cancellation of by-laws; 2) activities for the development of draft laws. The order of formation, systematization, adoption and promulgation of normative legal acts. Features of implementation of legislative activity. The importance of a systematic approach to the regulation of regulations governing the relevant industries and areas. Stages of the rule-making process. Legal acts of state executive bodies. Acts of bodies and officials of local

**Regional administration and local government.** Theories of regional development and their evolution. State regional policy and regional development management. Regionalism and regionalization as a global transformation process. Organizational and legal bases of formation and realization of the state regional policy. Subjects of formation of the state regional policy in Ukraine. Involvement of non-governmental structures in participation in providing regional development programs. Regional strategies as a tool for managing the development of territories. Methodical bases of preparation of regional strategies of development. Monitoring and evaluation of the implementation of regional development strategies. Management of regional infrastructure and infrastructure of the territorial community. Features of functioning of regional infrastructure objects of communal form of ownership. Public-private partnership in the development of regional infrastructure. The main aspects of the formation of social infrastructure of the region or territorial community. Development of the main branches of social and household purpose. Land management at the regional and local levels. The role and responsibilities of local government officials in the management of land resources in the area. Methodical approaches to the formation of a comprehensive mechanism for stimulating the economic development of a region or territorial community.

**Statistics in Public Administration.** Basic concepts of statistics; economic indices and correlation-regression analysis; industry statistics; basic methods of economic and statistical analysis when considering economic and political processes; technology for calculating indicators and indices of socio-economic development of Ukraine; methods for forecasting indicators of socio-economic development; methods of realization of economic policy of the state; preparation of requests for relevant statistical information from public authorities, political parties; preparation of analytical materials based on the results of the economic and statistical analysis; calculation of indicators of economic and social development of the object of management (and the levels of the state, region, territory) for the short and long term on the basis of the current state of affairs.


**Civil governance.** Theory of civil society. Periodization of the development of ideas of civil society: 1) early concepts of civil society in the VII-XIX centuries, the works of T. Hobbes, J. Locke, A. Ferguson, S.-L. Montesquieu, I. Kant, F. G. Hegel, A. de Tocqueville); 2) the development of ideas of the XIX-second half of the XX century, aimed at exacerbating class contradictions. Development of civic consciousness of Ukrainians in Galicia. The works of M. Drahomanov, I. Franko, M. Hrushevsky, and B. Kistyakivsky are

**Anti-corruption policy.** The concept of anti-corruption policy. Anti-corruption policy as a function of the state. The main threats of corruption for Ukraine and the world economy: interdependence of economies and globalization of corruption; terrorism as a threat to national and international security; political speculation and the establishment of a totalitarian system. Anti-corruption policy as a system of legal, economic, energy, social, environmental, information and other measures to combat corruption. Permanent measures of the state anti-corruption policy. Stages and directions of anti-corruption policy. Legislative support of anti-corruption measures. The system of anti-corruption bodies: goals, objectives, structure, subordination, activities. Basic provisions of anti-corruption legislation of Ukraine. International experience in combating and preventing corruption.

**Strategic management.** Strategic management: content, main differences from operational management. Principles of strategic management and their essence. The process of strategic management. The concept of strategic management. Orientation of strategic management to identify new opportunities, comprehensive vision of problems, pooling all available resources to achieve goals. Understanding management based on anticipation of change. Management technologies under conditions of high instability and unpredictability of the external environment. Strategic management as a type of management focuses on anticipating, planning and implementing the necessary and most significant changes.

**Optional components**

**Optional components by specialty**


**Institutional support of public administration.** Theory of institutionalism. Forms of manifestation of institutions: formal and informal. Components of institutional support: institutional and legal; institutional and personnel; organizational and institutional. Institutional support of public administration at the state level (higher and central bodies of state executive power, Verkhovna Rada of Ukraine, the institution of President). Institutional support of public administration at the regional level. Problems of institutional support of public administration.

**Fundamentals of land management and land cadastre.** Knowledge of the essence and patterns of development of land management, study of methods and mechanisms of management. Land management system. The essence and main ways to develop land management. Substantiation of the content and patterns of change in land management. Theoretical bases of land management and maintenance of the state land cadastre and its
components at the national, regional and local levels. The main issues of land relations regulation in terms of registration of land tenure, land use and real estate, accounting for the quantity and quality of land, soil quality and economic evaluation of land for the rational use of land resources.

**Sustainable development of territories.** The concept of sustainable development. The concept of sustainable development V. Vernadsky doctrine of the noosphere. UN Report «Transforming our world: the agenda in the field of sustainable development until 2030». Sustainable development goals in Ukraine. The difference between the Sustainable Development Goals and the Millennium Development Goals. Monitoring the implementation of Sustainable Development Goals at the state and territory level. Ideas, principles, strategies and mechanisms for implementation of the sustainable development concept. The main approaches to the study of the concept of sustainable development: 1) eco-centric; 2) economic-centric; 3) sociocentric. Theoretical and applied mechanisms for ensuring sustainable development of territories. Foreign experience in ensuring sustainable development of territories.

**Communication strategies in public administration.** Communicative strategy as the optimal implementation of communicating the management decision of a public authority to the object of management to achieve a specific goal by choosing effective speech moves and their modification in a changing situation. Features of communication strategies: dynamics and flexibility. Classification of strategies. Main and auxiliary communication strategies. Regulatory and motivational communication strategy of a public servant. The main tasks of the implementation of communication strategies in public administration: mastering oral monologue communication (report, speeches); mastering oral dialogic communication (discussion, conversation, negotiations, questions, answers), improving written communication skills (writing analytical documents, articles, reports, information reports); improving the ability to analyze professional texts.


**Leadership and team building.** Leadership: concepts, types, classification. Main theories of leadership. Team roles. Team building. Formation and development of leadership qualities: the ability to determine the strategy, activities and development of the organization; setting clear goals and objectives; ability to develop professional competencies of employees; ability to inspire a team and motivate people to dedicate themselves to work; achieving individual and team results; ability to delegate tasks effectively and manage team performance; creating a culture of openness and responsibility; ability to identify stakeholders and influential parties correctly, build partnership; ability to interact effectively, to listen, perceive and convey an opinion; the ability to influence the opinion of others using convincing arguments; ability to apply the principle of integrity and rules of ethical conduct of public servants.

**Public service quality management.** The essence of the concept of "public services". Scope of services. Classification of services, systematization of criteria for belonging of services to a certain type. Standardization in the field of administrative services. Principles of public service management. Experience of foreign countries in the field of public services. Activities of public authorities in the field of organization of service provision. Formation and management of the public services market. Influence of uncertainties on the organization of public services. Public service delivery tools. Quality management of public services. Quality management standards and models. Quality
management of services in public authorities. Evaluation of service quality. Control in the field of organization of service provision.

**Management of communal property.** Powers of local councils and executive bodies of village, settlement, city councils to manage property belonging to the communal property of territorial communities. Regulatory and legal regulation of communal property management. Enterprises of communal ownership: creation, management, financing, liquidation. Control over the activities of enterprises, institutions, organizations of communal ownership. The order of alienation of communal property. The procedure for appointment, dismissal and reporting of heads of utility companies.


**Political processes and institutions.** Political process as a form of functioning of the political system of society. Types of political processes: revolution, counter-revolution, uprising, revolt, uprising, coup, political campaign, direct action in politics. Democratic and totalitarian type of political process. Subjects and objects of the political process. Stages of the political process. Control over the functioning and development of the political system. Factors influencing political processes. Basic and peripheral political processes. Election. Electoral legislation of Ukraine. Formation of parties, blocs, factions, groups of influence and their influence on the socio-political life of the country. Global, regional, national, local political processes. Political processes at the administrative-territorial level (region, district, city) and within social communities. Political institutions as a kind of social institutions for the establishment, implementation and maintenance of power. Composition, types, methods of formation of political institutions in Ukraine and foreign countries. Interaction of political institutions and social modernization. Problems of public participation in political processes.

**Change management.** The concept and tools of change management. The need for change. The process of strategic change planning. Typical change management models. The impact of changes on the activities of social systems, organizations, people. Resistance to change: causes, methods of overcoming resistance, technologies for implementing change, human resource management in the process of change. Managing the process of change at different stages of their implementation. Monitoring and analysis of the change process.
**Project management in public administration.** The practical significance of project management. Definition of the project and features of the project. The essence of the program and project portfolio. Definition of project management and function of project management. Project management tools. Concepts, principles and methods of organizational design. The general sequence of development and formation of organizational structures of project management. Modern methods and means of organizational modeling of the project. Matrix methods. Distribution of administrative tasks of organization management. Calendar and network planning of the project. Probabilistic estimates of project duration. The method of mastered volume. Types and structure of contracts. Signing, execution and completion of contracts. Formation and development of the project team.

**European integration and policy of international cooperation.** The concept of the process of European integration and the main directions of further convergence of the participating countries and the policy of international cooperation. The institutional structure of the EU and the peculiarities of the division of powers between national and supranational governance structures. The main types of sectoral, horizontal, foreign policy of the EU and the policy of protection of citizens' rights. Practical identification of development models of EU member states. Formation of skills to determine the stages and criteria of systemic convergence of countries-applicants for accession, as well as analysis of the positive and negative consequences of the cointegration of CEE countries into the European Union. The main directions, mechanisms and instruments of rapprochement between Ukraine and the EU.

**Civic competence of a public servant.** Basic approaches to the consideration of the concept of civic competence and components of its structure. Features of the concept of "civic competence", which includes multifaceted and multicomponent. The concept of civic competencies of public servants as the ability to actively and responsibly exercise civil and official rights and responsibilities. Public involvement. Civic activity. Civic position. Active civil position. Participation in society. Traditional forms of public participation: participation in elections, activities of public organizations, cooperation with the authorities in resolving topical issues of local importance, patronage, financial support of charitable and volunteer organizations, etc. Participatory decision-making: domestic and foreign experience. Protest behavior of citizens.