

The Ministry of Education and Science of Ukraine
State Higher Educational Institution
"Ukrainian State Chemical Technology University"

Rector UDHTU

_____ OA. Pivovarov
" ____ " _____ 2017

Educational and professional programs

Ecology and Environment

(Name of the educational program)

The second (Master's) level

(Name of higher education)

Master

(Name of the degree that is assigned)

BRANCH OF KNOWLEDGE

10 Science

(Code name and area of expertise)

SPECIALTY Environment 101

_____ (Code and specialty)

Adopted by the Scientific Council

SHEE UDHTU

from " ____ " _____ 2017.

Protocol № ____

Dnipro
2017

Letter of approval	
Educational and vocational programs	
The level of higher education	The second (Master's) level
Branch of knowledge	10 Science
Specialty	101 Ecology
Educational and professional programs	Ecology and Environment
"APPROVED"	"DEVELOPERS"
First Vice-Rector, head of the scientific and methodical council SHEE UDHTU _____ Holeus VI (Signature) (surname and initials) « _____ » _____ 2017	The head of the project group _____ Nabyvach VM (Signature) (surname and initials) « _____ » _____ 2017
NSC chief _____ Smotrayev RV (Signature) (surname and initials) « _____ » _____ 2017	Members of the project team _____ Hevod VS (Signature) (surname and initials) « _____ » _____ 2017
Methodical Department _____ Fomenko GV (Signature) (surname and initials) « _____ » _____ 2017	_____ Makarchenko NP (Signature) (surname and initials) « _____ » _____ 2017
Dean THP _____ DA Suhomlin (Signature) (surname and initials) « _____ » _____ 2017	
Acting Head of Department THP and E _____ Vereshchak VG (Signature) (surname and initials) « _____ » _____ 2017	Educational and professional programs rendered valid Rector's order № ____ of " ____ " _____ 2017.

**I. PROFILE educational and vocational programs
TRAINING MASTER
101 specialty Ecology**

Profile program (general information)	
Full title in the original language skills	The degree of higher education - Master Specialty - Environmental
The official name of the educational program	Educational and vocational training program "Ecology and Environment " training master's degree in 101 Ecology
Type diploma and scope of the educational program	Master's degree in ecology, single (double, shared with the relevant agreements, training programs); 90 ECTS credits
Full name of the institution of higher education that award qualifications	State Higher Educational Institution "Ukrainian State Chemical Technology University"
The sending organization	Accreditation Commission of Ukraine (POC "Training Center for Quality Education"). NAZYAVO.
The period of accreditation	The certificate on initial accreditation - 5 years after re - 10 years.
Cycle / level	Ukraine NLC - 7 level, FQ-EHEA - second cycle, EQF-LLL - level 7
Background	The first (bachelor) level
Language (s) teaching	Ukrainian language
AND	
	The purpose of the educational program
The purpose of the educational program	Provide education in science with broad access to employment, prepare students who have fundamental and professionally oriented knowledge and skills in the field of ecology and environmental protection, to enable them to carry out original research or to work independently in the workplace.
B	
	Characteristics of the educational program
Subject area (discipline, specialty)	Industry knowledge 10 - Natural sciences: Specialty 101 - Ecology; educational and professional program - Ecology and Environment.
The main focus of the program and specialization	Total higher education in science.
Orientation program	The program focuses on modern science complex scientific results related to ecology and environmental protection within which possible future professional and academic career specialist in ecology.

Features and Differences	Regular updating that takes into account trends the progressive development of environmental technologies.
WITH	Ability to employment and further education
Ability to employment	Jobs environmentalist, teacher of higher education institution, Research assistant, researcher, researcher, consultant, engineer, researcher, laboratory engineer, Engineer restoration of natural ecosystems on environmental engineer, a specialist in environmental education assistant, ppetsialistom public service, fahivtsem management projects and programs in material (immaterial) production.
Further training	Education at the third level education for doctoral programs in the natural sciences.
D	The style of teaching and learning methods
Approaches to teaching and learning	A combination of lectures, practical seminars, experimental studies in laboratories, projects or writing term papers, learning, training qualifying work.
evaluation methods	Written and oral exams, tests, presentations, defense of master's qualification work.
IS	Software competence
Integral competence (INT)	<i>Master (Level 7): Ability to solve complex problems and issues in a particular industry or professional activities in the learning process, involving research and / or implementation of innovation and characterized by uncertainty conditions and requirements</i>
General competence (ZK)	<p>ZK-1 The capacity for abstract thinking, analysis and synthesis.</p> <p>ZK-2 The ability to communicate in a second language.</p> <p>ZK-3 Skills use of information and communication technologies.</p> <p>ZK -4 Ability to conduct research at an appropriate level.</p> <p>ZK -5 The ability to learn and be trained modern.</p> <p>ZK-6 The ability to search, process and analyze information from different sources.</p> <p>ZK-7 The ability to be critical and self-critical.</p> <p>ZK-8 Adaptability and performance in the new situation.</p> <p>ZK- 9 Ability to work in a team.</p> <p>ZK -10.The skills of interpersonal interaction.</p> <p>ZK -11.Commitment to safety.</p> <p>ZK -12.The ability to act on ethical grounds (reasons).</p> <p>ZK -13.Certainty and persistence on tasks and responsibilities taken.</p> <p>ZK -14.The desire to preserve the environment.</p>

	<p>ZK -15. The ability to use basic knowledge from basic science to the extent necessary for the theoretical development of professionally-oriented disciplines and solve practical problems of chemical technology and engineering.</p>
<p>Special (professional) competence (SC)</p>	<p>SC-1. The ability to have the knowledge and skills of application of environmental protection to minimize the negative impact of anthropogenic activities.</p> <p>SC-2. The ability to use knowledge, skills and abilities in the disciplines of general training cycle for the theoretical development of disciplines and professional direction solving practical problems of environmental technologies.</p> <p>SC-3. The ability to use the knowledge and practical skills to protect air quality.</p> <p>SC-4. The ability to use knowledge and practical skills to ensure the quality of natural water (water reservoirs).</p> <p>SC-5. The ability to use the knowledge and practical skills to protect soil (land resources) and the geological environment (subsoil).</p> <p>SK-6. The ability to use the knowledge and practical skills in the management and treatment of waste production and consumption to limit the negative man-made effects on the environment;</p> <p>SC-7. The ability to use knowledge for the conservation of biological and landscape diversity, rational use of natural resources and environment to preserve the stability of natural ecosystems.</p> <p>SK-8. The ability to use knowledge to reduce the negative impact of technologically-altered landscapes.</p> <p>IC-9. The ability to use calculation methods for environmental risk assessment of anthropogenic impact on the environment.</p> <p>SC-10. The ability to use basic tenets of sustainable (balanced) development and education for sustainable development for the practical realization in some regions of Ukraine.</p> <p>SC-11. The ability to use the principles of sustainable environmental management to ensure the implementation of preventive measures to protect the environment and conserve natural resources.</p> <p>SC-12. The ability to use modern technology in the field of environmental education and the principles of the Bologna process in Ukraine.</p> <p>SC-13. The ability to use modern methods of experimental work on technological objects in industrial and laboratory conditions, skills with modern instrumentation.</p> <p>IC-14. The ability to provide the necessary level of safety in solving professional problems.</p> <p>SC-15. The ability to introduce modern educational</p>

	<p>technologies in the field of environmental education and education for sustainable development.</p> <p><i>SC-16.</i> The ability to use knowledge of the principles of formation of environmental management systems and procedures for management of companies that make environmental management functions, tasks of environmental management.</p> <p><i>SC-17.</i> The ability to use knowledge of the principles and methodological approaches to environmental control and audit.</p> <p><i>SC-18.</i> <i>WITH</i>usefulness make effective decisions in civil protection allowing for the professional activities and in case of emergency (accidents).</p> <p><i>SC-19.</i> The ability to use knowledge of technology, economic and regulatory instruments of protection and restoration of the environment and natural resources.</p> <p><i>SC-20.</i> Skills for working with the most common software packages and use them to solve practical problems in the field of environmental protection.</p> <p><i>SC-21.</i> Competence in planning, design and execution of research projects, from the stage of problem identification to assessment results and drawing conclusions.</p> <p><i>SC-22.</i> Information retrieval skills in primary and secondary information sources, including information retrieval system using online search.</p> <p><i>SC-23.</i> Ability to use automated control system of environmental processes.</p> <p><i>SC-24.</i> Skills presentation of scientific material and arguments in writing and orally.</p>
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F	Program Learning Outcomes
<p>Results of studies in cognitive (cognitive) sphere</p>	<p><i>SW-1.</i> AProvodyty analysis, synthesis, creative thinking, evaluation and systematization of various Information sources for comprehensive environmental studies.</p> <p><i>SW-2.</i> APredstavlyaty results comprehensive environmental studies as scientific reports and presentations, using modern mapping and graphical methods.</p> <p><i>SW-3.</i> Cooking results integrated environmental Research to be published.</p> <p><i>SW-4.</i> To conduct research and development for research results and forming the basis for the conclusions and recommendations for storage, protection and restoration of natural ecosystems.</p> <p><i>SW-5.</i> INmyths vote count criteria and integrated indexes and based on them to justify and assess the level of pollution.</p> <p><i>SW-6.</i> Evaluate human impact on objects protected areas, providing recommendations for their protection organization based</p>

on their environmentally-oriented forms of recreation and rehabilitation.

SW-7. Assess the condition and the water quality of water bodies and analyze the dynamics of change depending on the conditions of water use and wastewater purification efficiency return water to provide recommendations to improve the ecological status of water bodies.

RCS-8. ATsinyuvaty level of anthropogenic load on the air and analyze the dynamics of air quality depending on the level of technical equipment pylohozoochysnyh facilities and equipment, weather-meteorological factors make recommendations for improvement.

SW-9. Evaluate the impact of waste production and consumption to environmental quality, efficiency of their treatment and provide recommendations for improving environmental safety.

SW-10. Evaluate dangerous geological processes (events) to determine the ecological and geological condition of territories and living conditions of the population, provide recommendations for improvement.

SW-11. Evaluate the status and quality of soil, depending on the technologies of land use, climatic and landscape conditions provide suggestions for improving agroecological zoning and state

SW-12. Assess the situation that may arise as a result of natural and man-made and provide recommendations for its stabilization.

SW-13. Evaluate the environmental and economic efficiency of design solutions from the standpoint of sustainable development, develop recommendations for optimal environmental management.

SW-14. Develop programs to ensure environmental safety, staff training methods of storing energy and natural raw materials, safe working methods.

SW-15. Develop comprehensive measures of environmental protection from excessive anthropogenic pressures.

SW-16. To be able to assess the need for a comprehensive approach to improve environmental safety, Environment and natural resources.

SW-17. You can search the latest technical and technological and organizational solutions to implementation in production of promising environmental, resource and energy-saving developments and modern equipment.

SW-18. Distribute responsibilities in the field of environmental activities between structural divisions of the company.

SW-19. To draft orders, regulations on environmental protection and natural resources.

	<p><i>SW-20.</i> Make a plan of subdivision and current environmental reports to address environmental issues.</p> <p><i>SW-21.</i> Draw up terms of reference for the development of scientific and technical products and execute according to regulatory requirements.</p> <p><i>SW-22.</i> Carry out an environmental audit operation manmade object (enterprise) and territory.</p> <p><i>SW-23.</i> Develop an environmental management system framework, taking into account industry specifics and scale of enterprises, organizations and territories.</p> <p><i>SW-24.</i> Following the technical, regulatory, legal and organizational bases of management of environmental safety design measures to minimize the negative effects of emergencies.</p> <p><i>SW-25.</i> Execute applications on regional, national and international grants and tender documents for professional research projects, provide them with support and passage;</p> <p><i>SW-26.</i> Organize interaction with state agencies of environmental control, public and other stakeholders in the environmental activities of enterprises, organizations and enterprises to ensure the timely exchange of information and improve the planning system.</p> <p><i>SW-27.</i> Organize training sessions and checks the results of student learning.</p> <p><i>SW-28.</i> Develop basic circuits control and automatic control of major environmental technologies.</p>
<p>Learning outcomes of value-motivational sphere</p>	<p><i>RTSMS-1.</i> Meet the requirements of professional ethics in the workplace.</p> <p><i>RTSMS-2.</i> Identify desire to work independently.</p> <p><i>RTSMS-3.</i> Asking questions in discussions with colleagues and teachers.</p> <p><i>RTSMS-4.</i> Organize research at an appropriate level.</p> <p><i>RTSMS-5.</i> Use knowledge of basic science disciplines to develop professional direction.</p> <p><i>RTSMS-6.</i> Participate in the discussion of the results of different types of work (research, search, design, etc.).</p> <p><i>RTSMS-7.</i> Obtained demonstrate professional skills in the creation of scientific and project documentation.</p> <p><i>RTSMS-8.</i> Organize measures to preserve the environment.</p> <p><i>RTSMS-9.</i> Collaborate with colleagues in related fields to achieve the objectives of research or project.</p> <p><i>RTSMS-10.</i> Results represent different types of work (research, search, design, etc.) native and one of the major European languages.</p> <p><i>RTSMS-11.</i> Understand the scientific and technical texts in native and one of the major European languages.</p>
<p>Results of studies in</p>	<p><i>RPS-1.</i> Experimental off</p>

the field of psychomotor	<p><i>RPS-2.</i> Repeatedly to reproduce the results of experiments to obtain reliable values and calculation error experiment.</p> <p><i>RPS-3.</i> Combine different research methods to define the parameters studied.</p> <p><i>MRF-4.</i> Observe safety in the workplace.</p>
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**II. DEFINITIONS academic disciplines / modules
that will ensure achievement of planned learning outcomes and forms of
certification candidates for higher education educational program according to the
standard of higher education**

Table 1. Distribution content of educational and professional training program cycles and the shape of the final control

№p / n	Subjects	Credits mandatory	Credits more	Hours	Semester	Tetramestr	Final control
1. MANDATORY TRAINING COURSE							
1.1 The cycle of general training (forming general competence)							
1.1.1	Occupational Health in	2.0		60	1	2	copies.
1.1.2	Intellectual Property	2.0		60	2	4	credit
1.1.3	Civil Protection	1.5		45	1	1	credit
1.1.4	Methodology and Research Organization	8.0		240	2	3, 4	copies.
1.1.5	Psychology and methods of teaching specialized subjects in high school	2.0		60	2	3	credit
1.1.6	Foreign Language (for professional purposes)	4.0		120	2	3.4	d.zalik
1.1.7	Physical education (out loans)						
Total for Cycle 1.1		19.5		585.0			
1.2 Cycle training (forming special (professional) competence)							
1.2.1	Sustainable Development Strategy	3.0		90	1	1	credit
1.2.2	A systematic analysis of environmental quality	6.0	2.5	255	1	1, 2	d.zalik, CA
1.2.3	Environmental Management and Audit	3.0		90	1	2	copies.
1.2.4	Geo Technologies in Environment	3.0	1.0	120	1	1	credit

1.2.5	Preparation qualification master's work and state certification	12.0	13.5	765			DA
	Total for Cycle 1.2	27.0	17.0	1320.0			
	MANDATORY pieces together	46.5	17.0	1905.0			
	2. Selective Courses						
	2.1. The cycle of general training (forming general competence)						
	2.2. Cycle training (forming special (professional) competence)						
2.2.1	Environmental technology		5.0	150.0	1	2	ind, CA
2.2.2	Fundamentals of environmental technologies		3.0	90.0	1	1	d.zalik
2.2.3	Basis of distribution of harmful substances in the biosphere		2.0	60.0	2	3	credit
2.2.4	Conduct of the water resources		6.0	180.0	2	3.4	ind, CD
2.2.5	One of the modules		10.5	315			
	module 1						
	assistant practice		4.5	135			d.zalik
	Research practice		6	180			d.zalik
	module 2						
	assistant practice		4.5	135			d.zalik
	Research and production practice		6	180			d.zalik
	Total for Cycle 2.2		26.5	795.0			
	MANDATORY TOTAL LOANS		46.5	1395			
	LOANS TOTAL SAMPLE		43.5	1305			
	TOTAL VOLUME		90.0	2700			

Table 2. Generalized distribution of educational content professional groups proqramyza components (subjects) and cycle training

№ p / p	Cycle training	Workload applicant Higher Education (loans /%)		
		Required components of educational and professional program	Selected components of educational and professional program	Total for the entire period of study
1.	The cycle of general training (forming general competence)	19.5 / 21.7	-	19.5 / 21.7
2.	Cycle training (forming special (professional) competence)	27 / 30.0	43.5 / 48.3	70.5 / 78.3
Total for the entire period of study		46.5 / 51.7	43.5 / 48.3	90/100

Table 3. List of subjects educational and professional training programs competitors education second (master's) level, learning time ECTS credits for cycle training and a list of existing competencies and learning outcomes

Training cycles	Ciphers competencies	Ciphers learning outcomes	The list of disciplines	ECTS credits
1	2	3	4	5
1.1. The cycle of general training (forming general competence)	TSP-1, TSP-3, TSP-4 LC-5, LC-8, ZK-9, LC-10, LC-11, LC-13, LC-14, LC-15, SC-1, SC-2, IC-3, IC-4, SC-5 SC-6 SC-7 SC-8, SC 9, SC-14	SW-1, SW-2, SW 4, SW-5, SW-6, SW-12 RKS-14, RKS-24 RTSMS-4 RTSMS-5 RTSMS-6 RTSMS-7 RTSMS-9 RTSMS 10, RTSMS-11 RPS-4	1.1.1 Safety in industry	2.0
	LC-1, LC-2 LC-3 ZK-4, ZK-5, LC-6 ZK-7, HCC-8, ZK-9, LC-10, LC-13, LC-14, LC-15, SC-1, SC-2, IC-3, IC-4, SC-5 SC-6 SC-12, SC-13, SC-20, SC-21, SC-22, SC-24	SW-1, SW-2, SW 3, SW-4, SW 5, SW-25 CSW-26 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-4 RTSMS-5 RTSMS-6 RTSMS-7 RTSMS-9 RTSMS 10, 11 RTSMS	1.1.2. Intellectual Property	2.0
	LC-3 LC-5, LC-6 ZK-7, HCC-8, ZK-9, LC-10, LC-11, LC-12, LC-13, HCC-14 SC-1, SC-6 SC-8 SC 9, SC-18, SC-20	SW 5, SW-6 RKS-12, RKS-15 CSW-24 RTSMS-2 RTSMS-8 RTSMS 10, 11 RTSMS	1.1.3. Civil Protection	1.5

LC-1, LC-2 LC-3 ZK-4, ZK-5, LC-6 ZK-7, HCC-8, ZK-9, LC-10, LC-11, LC- 12, LC-13, LC-15, SC-1, SC-2, IC-3, IC 4, SC-5 SC-6 SC-7 SC 9, SC-13, SC-15, SC-17, SC-20, SC-21, SC-22, SC-24	SW-1, SW-2, SW 3, SW-4, SW-17, SW-18, SW-19, SW-20 RKS-21, RKS-26 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-4 RTSMS-5 RTSMS-6 RTSMS-7 RTSMS-9 RTSMS 10, RTSMS-11 PSD-1, PSD-2 CPF 3, CPF-4	1.1.4. Methodology and Research Organization	8.0
LC-1, LC-2 LC-3 ZK-4, ZK-5, LC-6 ZK-7, HCC-8, ZK-9, LC-10, LC-12, LC- 13, LC-15 SC-1, SC-2, SC-12, SC-15, SC-17	SW-1, SW-2, SW 3, SW-4, RKS-26, RKS-27 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-4 RTSMS-5 RTSMS-6 RTSMS-7, 9 RTSMS-	1.1.5. Psychology and methods of teaching specialized subjects in high school	2.0
LC-1, LC-2 LC-3 LC-5, LC-6 LC-7, HCC-8, LC-9, LC- 10, SC-22, SC-24	RKS-17, RKS-26 RTSMS-2 RTSMS-3 RTSMS-7 RTSMS-9 RTSMS 10, RTSMS 11	1.1.6. Foreign language for professional purposes	4.0
LC-1, LC-3, ZK-4, ZK-5, LC-6 LC-7, HCC-8, LC-9, LC-10, LC-12, LC-13, LC- 14, ZK- 15, SC-1, SC-2, IC- 3, IC 4, SC-5 SC-6 SC-7 SC-8, SC-10, SC-11, SC- 13, SC-15, SC-22, SC-24	SW-1, SW-2, SW 4, SW 5, SW-6, SW-16, SW-17, SW-24, SW-26 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS- 5 RTSMS-6 RTSMS-8 RTSMS-9 RTSMS 10, RPS-4	1.1.7. Physical education (pozakredytna discipline)	
		TOTAL 1.1	19.5

1.2 Cycle training (forming special (professional) competence)	LC-1, LC-3, ZK-4, ZK-5, LC-6 LC-7, HCC-8, ZK-9, LC-10, LC-11, LC-12, LC-13, LC-14, LC-15, SC-14, SC-15, SC-18, SC-22	SW-1, SW-12, SW-18, SW-19, SW-20, SW-24, SW-26, SW-27 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-4 RTSMS-5 RTSMS-6 RTSMS-7 RTSMS-8 RTSMS-9	1.2.1 Sustainable Development Strategy	3.0
	LC-1, LC-3, ZK-4, ZK-5, LC-6 LC-7, HCC-8, LC-9, LC-10, LC-12, LC-13, LC-14, ZK- 15, SC-1, SC-2, IC-3, IC 4, SC-5 SC-6 SC-7 SC-8, SC 9, SC-10, SC-11, SC-13, SC-19, SC-20, SC-21, SC-22, SC-24	SW-1, SW-2, SW 3, SW 4, SW 5, SW-6, SW-7 SW-8, SW 9, SW 10, SW 11, SW-12 RKS-16, SW-17, SW-24, SW-26 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-5 RTSMS-6 RTSMS-8 RTSMS-9, 10-RTSMS	1.2.2 System analysis of environmental quality	8.5
	LC-1, LC-2 LC-3, ZK-4, ZK-5, LC-6 LC-7, HCC-9, LC-10, LC-15, SC-16, SC-17, SC-19, SC-20, SC-21, SC-22, SC-24	SW-1, SW-3, SW 4, SW-5, SW-6, SW-13, SW-14 RKS-22, RKS-23 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-4 RTSMS-5 RTSMS-6 RTSMS-7 RTSMS-9 RTSMS 10, 11 RTSMS	1.2.3 Environmental Management and Audit	3.0
	LC-1, LC-3, ZK-4, ZK-5, LC-6 LC-7, HCC-8, LC-9, LC-10, LC-12, LC-13, LC-14, ZK- 15, SC-1, SC-2, SK-5, SK-6 SK-7, SC-8, SC-11, SC-13, SC-19, SC-20, SC-21, SC-22, SC-24	SW-1, SW-2, SW 3, SW 4, SW 5, SW-6, SW 9, SW 10, SW 11, SW-12, SW-16, SW-17 RKS- 24, SW-26 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-5 RTSMS-6 RTSMS-7 RTSMS-8 RTSMS-9 RTSMS 10, 11 RTSMS	1.2.4 GIS technology in Ecology	4.0

	LC-1, LC-2 LC-3, ZK-4, ZK-5, LC-6 LC-9, LC-11, LC-13, HCC-14 HCC-15 SC-1, SC-2, IC-3, IC 4, SC-5 SC-6 SC-7 SC-8, SC 9, SC-10, SC-11, SC-12, SK- 13, SC-14, SC-15, SC-16, SC-17, SC- 21, SC-22, SC-23, SC-24	SW-1, SW-2, SW 3, SW 4, SW 5, SW-6, SW-7 SW-8, SW 9, SW 10, SW 11, SW-12 RKS- 13, SW-14, SW-15, SW-16, SW-17, SW-18, SW-19, SW- 20, SW-21, SW-24, SW-25, SW-28 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-4 RTSMS-5 RTSMS-6 RTSMS-7 RTSMS-8 RTSMS-9 RTSMS 10, RTSMS-11 PSD-1, PSD-2, CPF 3, CPF-4	1.2.5 Training and qualifying master's thesis State certification	25.5
			Just 1.2	44.0
	LC-1, LC-2 LC-3, ZK-4, ZK-5, LC-6 LC-7, HCC-9, HCC- 13 HCC-14 HCC-15 SC-1, SC-2, IC-3, IC 4, SC-5 SC-6 SC-7 SC-8, SC 9, SC-10, SC-11, SC-12, SK- 13, SC-14, SC-15, SC-16, SC-17, SC- 21, SC-22, SC-23, SC-24	SW-1, SW-2, SW 4, SW-6, SW-14, SW-15, SW-16, SW-17 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-4 RTSMS-5 RTSMS-6 RTSMS-7 RTSMS-8 RTSMS-9 RTSMS 10, 11 RTSMS	2.2.1 Environmental Technology	5.0

	LC-1, LC-2 LC-3, ZK-4, ZK-5, LC-6 LC-9, LC-11, LC-13, HCC-14 HCC-15 SC-1, SC-2, IC-3, IC 4, SC-5 SC-6 SC-13, SC-14, SC-20, SC- 21, SC-23	SW-1, SW-2, SW 9, SW 10, SW 15, SW-16, SW-17, SW- 21, SW-28 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-5 RTSMS-6 RTSMS-7 RTSMS-8 RTSMS-9 RTSMS 10, 11 RTSMS	2.2.2 Basics of environmental technologies	3.0
	LC-1, LC-3, ZK-4, ZK-5, LC-6 LC-9, LC-10, LC-13, HCC- 14 HCC-15 SC-1, SC-2, IC-3, IC-6 SC 9, SC-13, SC-15	SW-1, SW-2, SW 4, SW 8, SW 9, SW-12, SW-15, SW-17, SW- 24 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-4 RTSMS-5 RTSMS-6 RTSMS-7 RTSMS-8 RTSMS-9 RTSMS 10, 11 RTSMS	2.2.3 The Basics of distribution of harmful substances in the biosphere	2.0
	LC-1, LC-2 LC-3, ZK-4, ZK-5, LC-6 LC-9, LC-10, LC-13, HCC-14 HCC-15 SC-1, SC-2, IC-4, SC-6 SC-13, SC-20, SC-21, SC-22, SC- 23, SC-24	SW-1, SW-2, SW 3, SW 4, SW 5, SW-6, SW-7, SW 9, SW-14, SW-16, SW-17 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-4 RTSMS-5 RTSMS-6 RTSMS-7 RTSMS-8 RTSMS-9 RTSMS 10, 11 RTSMS	2.2.4 conduct of the water resources	6.0
			2.2.5 One of the modules	
			module 1	

	LC-1, LC-2 LC-3 LC-6 LC-7, HCC-8, LC-9, LC-10, LC-11, LC-12, LC-13, HCC-15 SC-2, SC 9, SC-10, SC-12, SC-13, SC- 14, SC-15, SC-20, SC-24	SW-1, SW-2, SW-27 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-5 RTSMS-6 RTSMS-7 RTSMS-9 RTSMS 10, RTSMS-11 RPS-4	assistant practice	4.5
	LC-1, LC-3, ZK-4, ZK-5, LC-6 LC-8, 9- HCC, LC-10, LC-11, LC-13, LC-14, HCC-15 SC-1, SC-2, IC-3, IC 4, SC-5 SC-6 SC-7 SC-8, SC 9, SC-13, SC-14, SC-15, SK- 16, SC-17, SC-19, SC-20, SC-21, SC-24	SW-1, SW-2, SW 3, SW 4, SW-6, SW-7 SW-8, SW 9, SW 10, SW 11, SW-13, SW-15 RKS- 16, SW-17, SW-25 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-4 RTSMS-6 RTSMS-7 RTSMS-8 RTSMS-9 RTSMS 10, RTSMS-11 PSD-1, PSD-2, CPF 3, CPF-4	Research practice	6.0
			<i>module 2</i>	
	LC-1, LC-2 LC-3 LC-6 LC-7, HCC-8, LC-9, LC-10, LC-11, LC-12, LC-13, HCC-15 SC-2, SC 9, SC-10, SC-12, SC-13, SC- 14, SC-15, SC-20, SC-24	SW-1, SW-2, SW-27 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-5 RTSMS-6 RTSMS-7 RTSMS-9 RTSMS 10, RTSMS- 11 RPS-4	assistant practice	4.5

	LC-1, LC-3, ZK-4, ZK-5, LC-6 LC-8, 9- HCC, LC-10, LC-11, LC-13, LC-14, HCC-15 SC-1, SC-2, IC-3, IC 4, SC-5 SC-6 SC-7 SC-8, SC 9, SC-13, SC-14, SC-15, SK- 16, SC-17, SC-19, SC-20, SC-21, SC- 23, SC-24	SW-1, SW-2, SW-6, SW-7 SW- 8, SW 9, SW 10, SW 11, SW- 12, SW-13, SW-14, SW-15 RKS- 16, SW-17, SW-18, SW- 19, SW-20, SW-21, SW-22, SW-24, SW-25, SW-26, SW-28 RTSMS-1 RTSMS-2 RTSMS-3 RTSMS-4 RTSMS-6 RTSMS-7 RTSMS-8 RTSMS-9 RTSMS 10, 11 RTSMS	Research and production practice	6.0
			TOTAL 1.2	70.5
			TOTAL	90.0

Table 4. Matrix compliance software competencies training component

Code of discipline curriculum	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.1.7	1.2.1	1.2.2	1.2.3	1.2.4	1.2.5	2.2.1	2.2.2	2.2.3	2.2.4	2.2.5 module 1		2.2.5 module 2	
																	assistant practice	Research practice	assistant practice	Research and production practice
INT	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
TSP-1	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
LC-2		+		+	+	+				+		+	+	+		+	+		+	
LC-3	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
ZK-4	+	+		+	+		+	+	+	+	+	+	+	+	+	+		+		+
LC-5	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+		+
LC-6		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
LC-7		+	+	+	+	+	+	+	+	+	+		+				+		+	
LC-8	+	+	+	+	+	+	+	+	+		+						+	+	+	+
LC-9	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
HCC-10	+	+	+	+	+	+	+	+	+	+	+				+	+	+	+	+	+
HCC-11	+		+	+			+					+		+			+	+	+	+
HCC-12			+	+	+		+	+	+		+						+		+	
HCC-13	+	+	+	+	+		+	+	+		+	+	+	+	+	+	+	+	+	+
HCC-14	+	+	+				+	+	+		+	+	+	+	+	+		+		+
HCC-15	+	+		+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+
SC-1	+	+	+	+	+			+	+		+	+	+	+	+	+		+		+

SC-2	+	+		+	+			+	+		+	+	+	+	+	+	+	+	+	+
SC-3	+	+		+				+	+			+	+	+	+			+		+
SC-4	+	+		+				+	+			+	+	+		+		+		+
SK-5	+	+		+				+	+		+	+	+	+				+		+
SC-6	+	+	+	+				+	+		+	+	+	+	+	+		+		+
SC-7	+			+				+	+		+	+	+					+		+
SK-8	+		+					+	+		+	+	+					+		+
SC-9	+		+	+					+		+	+		+		+	+	+	+	+
SC-10								+	+			+	+				+		+	
SC-11								+	+		+	+	+							
SC-12		+			+							+	+				+		+	
SC-13		+		+				+	+		+	+	+	+	+	+	+	+	+	+
SC-14	+						+					+	+	+			+	+	+	+
SC-15				+	+		+	+				+	+		+		+	+	+	+
SC-16									+			+	+					+		+
SC-17				+	+					+		+	+					+		+
SC-18			+				+													
SC-19									+	+	+							+		+
SC-20		+	+	+					+	+	+			+		+	+	+	+	+
SC-21		+		+					+	+	+	+	+	+		+		+		+
SC-22		+		+		+	+	+	+	+	+	+	+		+					
SC-23												+	+	+		+				+
SC-24		+		+		+		+	+	+	+	+	+			+	+	+	+	+

Table 5. Matrix Software learning outcomes associated components
Educational and vocational programs

Code of discipline curriculum	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.1.7	1.2.1	1.2.2	1.2.3	1.2.4	1.2.5	2.2.1	2.2.2	2.2.3	2.2.4	2.2.5 module 1		2.2.5 module 2	
																	assistant practice	Research practice	assistant practice	Research and production practice
SW-1.	+	+		+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+
SW-2.	+	+		+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+
SW-3.		+		+	+				+	+	+	+				+		+		
SW-4.	+	+		+	+			+	+	+	+	+	+		+	+		+		
SW-5.	+	+	+					+	+	+	+	+				+				
SW-6.	+		+					+	+	+	+	+	+			+		+		+
SW-7.									+			+				+		+		+
RCS-8.									+			+			+			+		+
SW-9.									+		+	+		+	+	+		+		+
SW-10.									+		+	+		+				+		+
SW-11.									+		+	+						+		+
SW-12.	+		+						+		+	+			+					+
CSW-13										+		+						+		+
CSW-14	+									+		+	+			+				+
SW-15.			+								+	+	+	+				+		+
SW-16.								+	+		+	+	+	+		+		+		+

CSW-17				+		+		+	+		+	+	+	+	+	+		+		+
CSW-18				+			+					+								+
CSW-19				+			+					+								+
CSW-20				+			+					+								+
CSW-21				+								+		+						+
CSW-22											+									+
CSW-23											+									
CSW-24	+		+				+	+	+		+	+			+					+
CSW-25		+										+						+		+
CSW-26		+		+	+	+	+	+	+		+									+
CSW-27					+		+										+		+	
CSW-28												+		+						+
RTSMS-1.		+		+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+
RTSMS-2.		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
RTSMS-3.		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
RTSMS-4.	+	+		+	+		+			+		+	+		+	+		+		+
RTSMS-5.	+	+		+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	
RTSMS-6.	+	+		+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+
RTSMS-7.	+	+		+	+	+	+			+	+	+	+	+	+	+	+	+	+	+
RTSMS-8			+				+	+	+		+	+	+	+	+	+		+		+
RTSMS 9	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
RTSMS 10	+	+	+	+		+		+	+	+	+	+	+	+	+	+	+	+	+	+
RTSMS 11	+	+	+	+		+				+	+	+	+	+	+	+	+	+	+	+
RPS-1.				+								+						+		
RPS-2.				+								+						+		
RPS-3.				+								+						+		
MRF-4.	+			+			+					+					+	+	+	

III - FORMS CERTIFICATION applicants HIGHER EDUCATION

<p>Forms certification candidates Higher Education</p>	<p>Mandatory state certification form set performance and protection qualification (diploma) papers (projects). In the state certification system submitted competencies and learning outcomes listed in Sections IV and V. The main means of objective control the degree of achievement of the ultimate goals of education and training are the masters and protection technology of qualification (diploma) papers (projects), which is defined in the following documents: Regulation on the EC, Guidance for qualification (degree) projects (work).</p>
<p>Requirements for final qualifying work (in the presence)</p>	<p>Requirements for final qualifying work outlined in the Guidance for qualification (degree) project (work). Final qualifying works accompanied by a supervisor review and review reviewer on which rests the completeness tasks, work quality and its overall check for plagiarism.</p>
<p>Requirements for attestation / single state qualifying exam (exam) (in the presence)</p>	
<p>Requirements for public protection (demonstration) (in the presence)</p>	<p>Requirements for public protection set out in the Regulation on the EC and Guidance for qualification (degree) project (work).</p>

IV - Requirements presence of internal quality assurance

higher education

Determined in accordance with European standards and guidelines on quality assurance (ESG) and Article 16 of the Law of Ukraine "On Higher Education"

The system of internal quality assurance	Definitions, links and documents
The principles and procedures for quality assurance	<ul style="list-style-type: none"> - Law of Ukraine "On education" from 01.07.2014 g. Number 1556-VII; - Provisional Regulations on the organization of educational process in SHEE UDHTU (Rector UDHTU Order of 30.11.2015 number 290); - Regulations on honors degree SHEE UDHTU (Rector UDHTU Order of 25.02.2016 number 55); - The provisions on the establishment and organization of the examination commission SHEE UDHTU (Order of 01.04.2015, the rector. Number 68); - The provisions of the development approval and review of work programs of disciplines (Order of Rector UDHTU 01.12.15 №291)
Monitoring and periodic review of education programs	Annual monitoring requirements of industry and the labor market, watching educational programs, curricula, working programs of disciplines. On approval of the project groups to develop educational programs (Rector UDHTU Order of 10.03.2016 number 74)
The annual evaluation of higher education applicants	Statement On Rector quality control training (Order of 03.17.2014, the rector. №78)
The annual evaluation of science teaching and teaching staff of higher educational institution	Regulations of the Rector control pedagogical skills of teaching staff of the University (Order of the Rector UDHTU 04.04.2016r. №85), The application rating system performance evaluation of teaching staff SHEE UDHTU (Order of 04.06.2010, the rector. Number 209 amended the order dated 09.06.2011 g. Number 147) , The application rating system of evaluation of departments and faculties SHEE UDHTU (Order of 04.06.2010, the rector. number 209). Regular publication of the results of such assessments

	to the official website of the university, on notice boards and in any other way
Advanced training of scientific and pedagogical, educational and scientific workers	Advanced training of teaching staff is under provisions approved by Mona of 24.01.2013r. Number 48 and the Regulations on training and teaching and training of teaching staff SHEE UDHTU (Order UDHTU Rector of 28.05.2016r. №105)
Having the necessary resources to the educational process	Educational and methodical, logistical and staffing meets licensing requirements (Decree km from 30.12.2015r. Number 1187) educational activities. License series AE №636496. Certificates in the areas of specialties.
Availability of information systems for the efficient management of the educational process	Temporary regulations on the organization of educational process in SHEE UDHTU (Rector UDHTU Order of 30.11.2015 number 290) is supported by information-analytical system of control of the educational process, which consists of subsystems: Applicants educational process.
Publicity of information on educational programs, higher education degrees and qualifications	Information about educational programs, higher education degrees and qualifications is fully public and published on the official web-portal of the University http://udhtu.com.ua
Prevention and detection of academic plagiarism	Check completeness of tasks, work quality and its overall check for plagiarism carried teacher - supervisor course or thesis (project) in the prescribed manner using appropriate software.