МІНІСТЕРСТВО ОСВІТИ ТА НАУКИ УКРАЇНИ
НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ
"ЛЬВІВСЬКА ПОЛІТЕХНІКА"

"ЗАТВЕРДЖУЮ"
Ректор
Національного університету
«Львівська політехніка»
_____ / Бобало Ю.Я. /
"25" 05 2021р. р.

ОСВІТНЬО-НАУКОВА ПРОГРАМА

третього (освітньо-наукового) рівня вищої освіти
за спеціальністю 183 «Технології захисту навколишнього середовища»
галузі знань 18 «Виробництво та технології»
Кваліфікація: Доктор філософії за спеціальністю «Технології захисту навколишнього середовища»

Розглянуто та затверджено
Вченою радою університету
(протокол № 74
від «25» 05 2021 р.)

Львів 2021

Розроблено робочою групою за спеціальністю 183 «Технології захисту навколишнього середовища» у складі:

Керівник робочої групи (гарант): Петрушка І.М.	д.т.н., проф., зав. кафедри ЕБПД
Члени:	
Погребенник В.Д.	д.т.н., проф., проф кафедри ЕБПД
Мокрий В.І.	д.т.н., доц., професор кафедри ЕБПД
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Кузь О.Н.	к.т.н., доц., доцент кафедри ЕБПД
Тимчук І.С.	к.т.н., асист. Голова ради молодих вчених
Коваль Н.І.	к.т.н., Державна екологічна інспекція у Львівській області: головний спеціаліст сектору державного екологічного контролю надр - державний інспектор з охорони навколишнього природного середовища у Львівській області.
Джумеля Е.А.	аспірант кафедри ЕБПД
Гречаник Р.М.	Директор Департаменту екології та природніх ресурсів Львівської обласної державної адміністрації

Гарант д.т.н., проф.. Петрушка І.М.

Затверджено та надано чинності Наказом ректора Національного університету «Львівська політехніка» від «1» 06 2021 р. № 325-л-10.

ЛИСТ-ПОГОДЖЕННЯ
освітньо-наукової програми

Рівень вищої освіти	третій (освітньо-науковий)
Галузь знань	18 *Виробництво та технології*
Спеціальність	183 *Технології захисту навколишнього середовища*
Кваліфікація	доктор філософії

СХВАЛЕНО
Науково-методичною комісією спеціальності 183 *Технології захисту навколишнього середовища*
Протокол №__3_
від «15.02» 2021 р.

Голова НМК спеціальності 183 *Технології захисту навколишнього середовища*
_____
«15» __02__ 2021 р.

Директор ННІ сталого розвитку Ім. В. Чорновола
_____ О.І Мороз
«17» __02__ 2021 р.

ПОГОДЖЕНО
Начальник навчально-методичного відділу
_____ Свірідов В.М.
«12» __05__ 2021 р.

Проректор з наукової роботи
_____ Демидов І.В.
«15» __04__ 2021 р.

Проректор з науково-педагогічної роботи
_____ Давидчак О.Р.
«12» __05__ 2021 р.

РЕКОМЕНДОВАНО
Науково-методичною радою університету
Протокол №56
від «13» __05__ 2021 р.
Голова НМР
_____ А.Г. Загородній

And. EDUCATIONAL COMPONENT OF THE EDUCATIONAL AND SCIENTIFIC PROGRAM

1. Profile of the Doctor of Philosophy program in the field of knowledge 18 "Production and technologies" in the specialty 183 "Environmental protection technologies"

1 - General information	
Full name of the higher education institution and structural unit	**Lviv Polytechnic National University**
The full title of the qualification in the original language	**Doctor of Philosophy in "Production and Technologies" specialty "Environmental Protection Technologies"** **Doctor of Philosophy in the field of " Production and technology " specialty " Environmental Protection Technologies "**
The official name of the educational program	Environmental protection technologies Environmental Protection Technologies
Type of diploma and scope of the educational program	Diploma of the Doctor of Philosophy, single, 43 ECTS credits of the educational and scientific program, the term of the educational component of the educational and scientific program is 2 years
Cycle/level	NRK of Ukraine – level 8, FQ-EHEA – third cycle, EQF-LLL – 8th level
Prerequisites	Level of higher education "Master"
Language(s) of instruction	Ukrainian language
Basic concepts and their definitions	The educational and scientific program uses the main concepts and their definitions in accordance with the Law of Ukraine "On Higher Education" dated 07/01/2014 No. 1556-VII as amended, the Law of Ukraine "On Scientific and Scientific and Technical Activities" dated 11/26/2015 r. No. 848-VIII with amendments and additions, the Procedure for the training of higher education applicants for the degree of Doctor of Philosophy and Doctor of Science in higher educational institutions (scientific institutions), approved by Resolution of the Cabinet of Ministers dated 03.23.2016 No. 261, Methodological recommendations for the development of standards of higher education of education approved by the higher education sector of the Scientific and Methodological Council of the Ministry of Education and Science of Ukraine (protocol dated March 29, 2016 No. 3)
2 - The purpose of the educational program	
	To deepen theoretical knowledge and practical abilities and skills of carrying out scientific research activities in the specialty "Environmental Protection Technologies". To develop philosophical and linguistic competences, to form universal skills of a researcher, sufficient for conducting and successfully completing scientific research and further professional and scientific activities
3 - Characteristics of the educational program	
Subject area (field of knowledge, specialty)	Branch of knowledge *18 Production and technologies,* specialty 183 *environmental protection technologies*
Orientation of the educational program	The educational and scientific program is based on the fundamental postulates of ecology and the results of modern scientific research. Aimed

	at the development of the theoretical-methodological and methodological-applied base of environmental protection technology with the accentuation of the latest trends in the development of ecology, which deepens the professional scientific outlook and provides the basis for conducting scientific research and further professional and scientific activities
The main focus of the educational program and specialization	Acquiring the necessary research skills for a scientific career, teaching special disciplines in the field of environmental protection technologies and restoration of anthropogenic ecosystems. **Keywords:** ecology, ecological safety, ecological monitoring, production technology, natural resources, modeling, forecasting, rational nature management, landscape reclamation, anthropogenic load.
Features and differences	The educational and scientific program implements the provisions of the concept of sustainable development in the practice of training doctors of philosophy, which forms certain social values, humanistic beliefs and necessary research skills for a scientific career and teaching special disciplines in Environmental Protection Technology
4 – Eligibility of graduates of the educational program to employment and further education	
Suitability for employment	Jobs in scientific research institutes of the National Academy of Sciences of Ukraine, universities of the Ministry of Education and Culture of Ukraine, scientific centers and high-tech companies of an ecological profile, enterprises of renewable energy sources and waste processing and disposal.
Further education	Advanced training in research institutes of the National Academy of Sciences of Ukraine, leading universities and research centers. Completion of the scientific program of the fourth (scientific) level of higher education for obtaining the degree of Doctor of Science
5 – Teaching and assessment	
Teaching and learning	Lectures, practical classes, research in laboratories, elaboration of publications in leading environmental publications, consultations with teachers, writing abstracts, preparation of a dissertation.
Assessment	Written and oral exams, assessments, oral presentations.
6 – Software competencies	
Integral competence (INT)	The ability to solve complex specialized tasks and practical problems during professional activities in the field of natural sciences, environmental protection technologies, technologies for restoring disturbed ecosystems and in the learning process, which involves the application of methods and means of environmental protection and characterized by the complexity of conditions , as well as the practical implementation of the obtained results .
General competences (CG)	ZK1. Systematic knowledge of modern research methods in the field of ecology, nature conservation and environmental protection ;
	ZK2. Critical analysis, assessment and synthesis of new ideas ;
	ZK3. The ability to effectively communicate with the wider scientific community and the public on topical issues of ecology, nature conservation and environmental protection ;
	ZK4. Ability to self-develop and self-improve during life, responsibility for teaching others ZK5. Social responsibility for the results of strategic decision-making ; ZK6. Initiation of original research and innovation complex projects, ZK 7. Leadership and the ability of both autonomous and team work during project implementation .

	ZK 8. Ability to conduct research at the appropriate level. ZK 9. Ability to work autonomously. ZK 10. Ability to make informed decisions. ZK 11. Ability to develop and manage projects.
Special (professional) competences) (FC)	FK1. Systematic knowledge of scientific concepts, theories and methods necessary for understanding the principles of operation and functional purpose of air purification, water purification, reclamation systems and technologies; FK2. In-depth knowledge of basic regulatory and legal acts and reference materials, current standards and technical conditions, instructions and other regulatory documents in the field of environmental protection activities ; FK3. In-depth knowledge of technical characteristics, design features, purpose and rules of operation of air purification, water purification, reclamation equipment and equipment ; FK4. Knowledge and skills of working with computer technologies to solve the problems of protection and restoration of ecosystems; FC5. Ability to apply and integrate knowledge and understanding of disciplines in other natural and technical fields; FC6. The ability to use and implement new technologies, to participate in the modernization and reconstruction of equipment, means, systems and complexes in order to protect the environment and restore natural and man-made ecosystems; FC7. The ability to understand and take into account social, ecological, ethical, economic aspects that affect the development of effective environmental protection solutions and the use of alternative sources of energy ; FC8. The ability to apply professional knowledge and practical skills for the implementation of environmental protection technologies and restoration of natural resources and ecosystems; FC9. The ability to investigate environmental problems and determine limitations, including those caused by anthropogenic, man-made, and production factors affecting environmental safety and the safety of life; FC10. The ability to argue the choice of nature protection, nature protection and nature restoration methods for solving specialized environmental problems, critically evaluate the results obtained and defend the decisions made.
7 – Program learning outcomes	
Knowledge (Knowledge)	3H1. the ability to demonstrate systematic knowledge of modern research methods in the field of environmental protection technology; 3H2. the ability to demonstrate in-depth knowledge in the chosen field of scientific research; 3H3. the ability to demonstrate an understanding of the impact of technical solutions in a public, economic and social context.
Skill (Skill)	UM1 to use professionally profiled knowledge and practical skills from fundamental disciplines in the technologies of protection, preservation and restoration of the environment. UM2. apply knowledge and understanding to solve qualitative and quantitative problems regarding the elimination of anthropogenic and man-made disturbances of ecosystems. UM3. The ability to use knowledge about ensuring environmental safety to develop and make management decisions. UM4. The ability to use the system of environmental standardization,

	certification and normalization of anthropogenic load. UM5. Ability to analyze, evaluate, process, interpret and synthesize environmental information and form databases. UM6. The ability to use specialized computer technologies and software for the assessment of technogenic impact on the environment. UM7. Skills and abilities in the field of environmental law and the application of environmental legal norms; UM8. The use of knowledge of technologies of protected affairs and the peculiarities of the formation of an eco-network for the preservation of landscape and biological diversity. UM9. Use of knowledge to ensure the application of industrial and household waste recovery technologies. УМ10 Practical skills of working with specialized information and control and measurement tools. UM11. The ability to use information and analytical technologies to assess the degree of environmental risks of various types of economic activity on the environment. .
Communication (COM)	KOM1. Ability to communicate effectively on professional and social levels; KOM2. The ability to present and discuss the obtained results and transfer the acquired knowledge;
Autonomy and responsibility (AiV)	AiB1.- Ability to adapt to new situations and make decisions; AiB2. The ability to realize the need for lifelong learning in order to deepen the acquired and acquire new professional knowledge; AiB3. The ability to take responsibility for the work performed and to - achieve the set goal in compliance with the requirements of professional ethics; AiB4. Ability to demonstrate understanding of the basic principles of occupational health and safety and their application.
8 – Resource support for program implementation	
Specific characteristics of personnel support	100% of the teaching staff involved in teaching professionally oriented disciplines have scientific degrees in their specialty
Specific characteristics of material and technical support	Use of modern control and measuring equipment of leading companies, in particular Akvilon , Lachat Instruments , Metrohm AG, Shimadzu Corporation , Young Lin Instrument , Dionex Corporation , ElvaX to determine environmental parameters.
Specific characteristics of informational and methodological support	The use of the virtual learning environment of the National University "Lviv Polytechnic" and author's developments of the teaching staff.
9 – The main components of the educational program	
List of educational components (disciplines, practices, coursework and qualification papers)	The matrix of correspondence of program competencies to educational disciplines and the structure of the educational program are given in the Appendix
10 – Academic mobility (regulated by CMU Resolution No. 579 "On Approval of the Regulation on the Procedure for Realizing the Right to Academic Mobility" dated August 12, 2015)	
National credit mobility	On the basis of bilateral agreements between the National University "Lviv Polytechnic" and technical universities of Ukraine.

International credit mobility	As part of the EU Erasmus+ program on the basis of bilateral agreements between Lviv Polytechnic National University and educational institutions of partner countries
Education of foreign students of higher education	Possible.

2. Distribution of content of the educational component of the educational and scientific program by component groups and training cycles

No s/p	Training cycles	The amount of study load of a graduate student (credits / %)		
		Mandatory components of the educational component	Elective components of the educational component	In total for the entire term teaching
1.	Cycle of disciplines that form general scientific competences and universal skills of the researcher	21 / 49	3 / 7	24/56
2.	Cycle of disciplines forming professional competences	10/23	6/14	16/37
3.	The cycle of free choice of a graduate student	-	3/7	3/7
Total for the entire period of study		31/72	12/28	43/100

3. List of components of the educational component of the educational and scientific program

Code n/a	Components of the educational component	Number of credits	Form summary _ control	Competences provided for by Resolution 261 dated 03.23.2016 (as amended from 04.03.2019)
1	2	3	4	5
1. Mandatory components educational component				
Cycle of disciplines that form general scientific competences and universal skills of the researcher				
OK1.1.	Philosophy and methodology of science	3	examination	Mastering general scientific (philosophical) competences aimed at forming a systematic scientific outlook, professional ethics and a general cultural outlook; application of modern information technologies in scientific activities (work with NMBD, automatic formation of links to literary sources)
OK1.2.	A foreign language for academic purposes, part 1	4	test	Acquisition of linguistic competences sufficient to present and discuss the results of one's scientific work in a foreign language in oral and written form, as well as to fully understand foreign language scientific texts in the relevant specialty, use of modern information technologies (presentation of scientific results).
OK1.3.	A foreign language for academic purposes, part 2	4	examination	
OK1.4.	Professional pedagogy	3	test	Acquisition of universal skills of a researcher, in particular, organization and conduct of training sessions, use of modern information technologies (work with VNS, Microsoft Teams , Zoom , etc.)
OK1.5.	Academic entrepreneurship	4	test	Acquisition of universal skills of a researcher, in particular, oral and written presentation of the results of one's own research in Ukrainian, management of scientific projects and/or preparation of proposals for financing scientific research, registration of intellectual property rights, application of modern information technologies.
OK1.6.	Pedagogical practice	3	test	Acquisition of universal skills of a researcher, in particular, organization and conduct of training sessions, use of modern information technologies (work with VNS, Microsoft Teams , Zoom , etc.).
Total per cycle:		**21**		
Cycle of disciplines forming professional competences				
OK2.1.	The latest innovative technologies for environmental protection	4	examination	Acquiring in-depth knowledge of the specialty in which the graduate student conducts research, in particular, mastering the main concepts, understanding theoretical and practical problems, the history of development and the current state of scientific knowledge in the chosen specialty, mastering the terminology of the researched scientific direction in the amount of ECTS credits in accordance with the standard of higher education
OK2.2.	Methodology of scientific research in the field of environmental protection technologies	3	test	
OK2.3.	Ecological information and measurement technologies of environmental pollution control	3	test	
Total per cycle:		**10 (3+3+4)**		
Selective components educational component				
Cycle of disciplines that form general scientific competences and universal skills of the researcher				
VB1.1	Business Foreign Language	3	test	Acquisition of universal skills of a researcher, in particular, oral and written presentation of the results of one's own research in Ukrainian, management of scientific projects and/or preparation of proposals for
VB1.2	Psychology of creativity and invention	3	test	
VB1.3	Management of scientific projects	3	test	

VB1.4	Technology of registration of grant applications and patent rights	3	test	financing scientific research, registration of intellectual property rights, application of modern information technologies. Acquisition of linguistic competences sufficient to present and discuss the results of one's scientific work in a foreign language in oral and written form, as well as to fully understand foreign language scientific texts in the relevant specialty, use of modern information technologies (presentation of scientific results). Mastering general scientific (philosophical) competences aimed at forming a systematic scientific outlook, professional ethics and a general cultural outlook; application of modern information technologies in scientific activities (work with NMBD, automatic formation of links to literary sources) Acquisition of universal skills of a researcher, in particular, organization and conduct of training sessions, use of modern information technologies (work with VNS, Microsoft Teams , Zoom , etc.).
VB1.5	Rhetoric	3	test	
VB1.6	Modern inventions in research activities	3	test	
VB1.7	Open scientific practices	3	test	
VB1.8	Academic integrity and quality of education	3	test	
VB1.9	Methodology of preparation of scientific publications	3	test	
VB1.10	Quality of higher education (formation of internal quality assurance systems)	3	test	
Total per cycle:		**3**		
Cycle of disciplines forming professional competences				
VB2.1	Methodology of forming grant applications	3	examination	Acquiring in-depth knowledge of the specialty in which the graduate student conducts research, in particular, mastering the main concepts, understanding theoretical and practical problems, the history of development and the current state of scientific knowledge in the chosen specialty, mastering the terminology of the researched scientific direction
VB2.2	The procedure for preparing articles, reports and presentations	3	examination	
VB2.3	Protection of intellectual property objects	3	examination	
VB2.4	Project management in ecology	3	examination	
VB2.5	Technology transfer	3	examination	
VB2.6	Research methods in the technology of environmental protection from pollution	3	examination	
VB2.7	Geoinformation systems in environmental protection	3	examination	
VB2.8	Monitoring of environmental pollution	3	examination	
VB2.9	Basics of environmental control of industrial production	3	examination	
VB2.10	Modern technologies for cleaning the environment from pollution	3	examination	
Total per cycle:		**6 (3+3)**		
Disciplines of the graduate student's free choice				
VB3.1	Discipline of the graduate student's free choice	3	test	
Total per cycle:		**3**		
TOGETHER		**43**		

4 . Matrix of correspondence of program competencies to educational components

	OK1.1	OK1.2	OK1.3	OK1.4	OK1.5	OK1.6	OK2.1	OK2.2	OK2.3	VB1.1	VB1.2	VB1.3	VB1.4	VB1.5	VB1.6	VB1.7	VB1.8	VB1.9	VB1.10	VB2.1	VB2.2	VB2.3	VB2.4	VB2.5	VB2.6	VB2.7	VB2.8	VB2.9	VB2.10
INT	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ZK1	*						*		*																*	*	*		
ZK2	*				*	*		*						*		*				*	*	*	*	*	*		*	*	
ZK3			*		*	*		*		*				*					*	*			*		*				
ZK4		*	*		*	*		*	*			*		*					*		*	*							*
ZK5	*			*			*			*		*			*					*	*			*	*				
ZK6	*				*	*		*	*		*											*		*	*				
ZK7					*	*	*						*		*	*		*				*							
ZK8	*						*						*		*	*	*				*		*						
ZK9					*			*	*	*	*		*						*		*		*	*					*
ZK10	*					*		*	*		*	*						*	*				*	*					*
ZK11	*				*	*		*				*					*			*	*	*							
FK1					*		*	*			*				*		*							*	*	*	*		*
FC2					*			*	*			*	*					*							*	*	*	*	*
FK3							*		*														*	*		*		*	*
FK4					*	*	*		*														*	*					
FC5	*			*		*			*											*	*				*				
FC6	*	*	*	*	*	*			*					*					*							*			*
FC7	*				*		*		*			*			*							*				*		*	
FC8				*	*		*		*						*		*								*		*		
FC9					*		*	*					*			*						*							
FC10		*	*		*		*	*			*										*		*		*				*

* - competence, ZKj – general competence, FCj – professional (special) competence, j – competence number in the list of competences of the educational component.

5. Matrix of provision of program learning outcomes with relevant components of the educational component

	OK1.1	OK1.2	OK1.3	OK1.4	OK1.5	OK1.6	OK2.1	OK2.2	OK2.3	VB1.1	VB1.2	VB1.3	VB1.4	VB1.5	VB1.6	VB1.7	VB1.8	VB1.9	VB1.10	VB2.1	VB2.2	VB2.3	VB2.4	VB2.5	VB2.6	VB2.7	VB2.8	VB2.9	VB2.10
ЗН1	*							*	*	*	*		*	*						*			*		*				
ЗН2				*	*		*	*				*		*	*						*			*					*
ЗН3	*	*			*			*		*				*		*	*					*	*				*		
УМ1		*	*		*	*		*			*										*						*		*
УМ2	*				*	*	*		*				*		*			*		*					*	*			*
УМ3	*			*			*	*		*		*						*	*								*	*	
УМ4	*				*		*		*						*														
УМ5			*		*		*		*		*				*	*			*					*		*			*
УМ6	*	*	*			*		*	*			*										*		*		*			
УМ7		*			*		*			*	*		*				*			*	*		*					*	*
УМ8	*			*	*			*				*						*	*						*		*		*
УМ9		*					*		*			*													*	*		*	*
УМ10		*	*		*		*		*		*		*			*	*		*					*					*
УМ11	*						*	*				*										*	*			*		*	*
КОМ1	*	*	*					*		*				*	*			*	*		*	*				*		*	*
КОМ2	*	*	*				*	*	*									*	*			*		*					
АіВ1	*			*		*	*	*		*	*	*								*	*			*					*
АіВ2	*						*	*	*			*	*				*	*	*	*	*	*	*	*					*
АіВ3	*				*		*		*			*			*							*				*		*	
АіВ4				*	*		*	*	*	*					*		*		*						*		*		

Conventional designations: ОКи – mandatory discipline, ВБи – selective discipline, и – number of the discipline in the list of components of the educational component, ЗНm – program results (knowledge), УМm – program results (skills), m – number of the program result in the list of program results educational component.

II. The scientific component of the educational and scientific program

The scientific component of the educational-scientific program involves the post-graduate student conducting his own scientific research under the supervision of a scientific supervisor and the preparation of his results in the form of a dissertation.

The dissertation for obtaining the degree of Doctor of Philosophy is an independent detailed research that offers a solution to the current scientific and applied task in the specialty 183 "Environmental protection technologies", the results of which are characterized by scientific novelty and practical value and are published in relevant publications.

The scientific component of the educational-scientific program is drawn up in the form of an individual plan of scientific work of a postgraduate student and is an integral part of the postgraduate curriculum.

Preparation and publication of scientific articles, speeches at scientific conferences, scientific professional seminars, round tables, symposia are an integral part of the scientific component of the postgraduate educational and scientific program.

Subjects of scientific research in specialty 183 "Technologies of environmental protection"

1. Environmental risk assessment of environmental pollution.
2. Environmental impact assessment of mining and chemical industries.
3. **Environmental safety of urbanized areas in conditions of man-made transformation of atmospheric precipitation**
4. Environmental safety of food production (wastewater treatment, waste disposal).
5. Basin management principle ecological safety of water resources in
6. Improvement of the ecologically safe technological process of solid waste disposal of poultry farming.
7. Determination of the level of ecological safety of the region by the method of toxic-energy response of biotic components of aquatic ecosystems
8. Use of natural dispersed sorbents in environmental protection.
9. Theoretical foundations of purification of liquid media by adsorption methods.
10. Ecologically safe adsorption cleaning industrial drains in id ions heavy metals.
11. Environmental problems of craft breweries and ways to solve them.
12. Two-stage treatment of landfill leachate in aerobic lagoons and municipal sewage treatment plants.
13. Cleaning of surface waters from oil pollution by adsorption methods.
14. Reducing the level of contamination of yeast -containing wastewater under cavitation conditions.
15. Adsorption processes of wastewater treatment from organic solvents.
16. Environmental safety of waste-free technologies for the processing of multicomponent salt - containing materials.
17. Elimination of sewage pollution of milk processing complexes by sorption methods.
18. Increasing the level of environmental safety by improving the operation of city sewage treatment plants.
19. Reducing the level of bacterial contamination of the hydrosphere by complex physical and adsorption methods of wastewater treatment.
20. Cleaning of gas environments from chemical and mechanical pollution.
21. Processing and disposal of solid household and industrial waste.
22. Ensuring the ecological safety of reservoirs by using microalgae for the production of energy carriers.
23. Assessment of the level of ecological safety of drinking water supply

III. Attestation of a third-level graduate of higher education

Certification of students of higher education is the establishment of compliance of the level and volume of knowledge, skills and competences of a student of higher education, who is studying according to the educational program, to the requirements of the standards of higher education. Attestation of applicants for higher education with the degree of doctor of philosophy is carried out by a specialized scientific council, permanently active or formed for a one-time defense, on the basis of a public defense of scientific achievements in the form of a dissertation.

A mandatory condition for admission to the defense is the successful completion of the graduate student's individual study plan.

Candidates of higher education for the degree of Doctor of Philosophy defend their dissertations, as a rule, in a permanent specialized academic council for the relevant specialty, which functions in the higher educational institution where the graduate student was trained. The academic council of a higher educational institution has the right to submit documents to the National Agency for Quality Assurance of Higher Education for the accreditation of a specialized academic council formed for a one-time defense, or to apply to another higher educational institution where a permanent specialized academic council in the relevant specialty operates .

Attestation of graduates of specialty 183 "Environmental protection technologies" is carried out in the form of a defense of a dissertation for the degree of Doctor of Philosophy and ends with the issuance of documents of the established model on awarding him with the degree of Doctor of Philosophy with the qualification - Doctor of Philosophy in Entrepreneurship, Trade and Exchange Activities.

Attestation is carried out openly and publicly.

IV. Characteristics of the system of internal quality assurance of the APPLICANT's training of the third level of higher education

The system of internal assurance of the quality of higher education by a higher educational institution consists of the following procedures and measures provided for by the Law of Ukraine "On Higher Education":

1) determination of the principles and procedures for ensuring the quality of higher education;
2) implementation of monitoring and periodic review of educational programs;
3) annual assessment of candidates for the level of Doctor of Philosophy, scientific and pedagogical workers of a higher educational institution and regular publication of the results of such assessments on the official website of the higher educational institution, on information stands, etc.;
4) ensuring advanced training of scientific and pedagogical workers;
5) ensuring the availability of the necessary resources for the organization of the educational process, including the independent work of applicants of the third level of higher education, for each educational program;
6) ensuring the availability of information systems for effective management of the educational process;
7) ensuring publicity of information about educational programs, degrees of education and qualifications;
8) ensuring an effective system of prevention and detection of academic plagiarism in the scientific works of employees of higher educational institutions and PhD candidates.

Structural and logical scheme of the educational and scientific program of the Doctor of Philosophy in the specialty 183 "Technologies of environmental protection"