

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
RIVNE STATE UNIVERSITY OF THE HUMANITIES**

EDUCATIONAL AND PROFESSIONAL PROGRAM

"Ecology"

Second level of higher education


specialty **101 - Ecology**

field of knowledge **10 – Natural Sciences**

Qualification: **Master of Ecology, teacher of Ecology**

APPROVED BY THE ACADEMIC BOARD
of Rivne State University of the Humanities

Head of the Academic Board


Prof. Postolovsky R.M.
(minutes No. 1 dated 27.01.2022)

Educational-professional program
was enacted on **September 1, 2022**



Prof. Postolovsky R.M.
(Order No. 10-0101 dated 27.01.2022)


Rivne 2022


LETTER OF APPROVAL
of the educational and professional program
"Ecology"

LEVEL OF HIGHER EDUCATION	Second
LEVEL OF HIGHER EDUCATION	Master's degree
FIELD OF KNOWLEDGE	10 – Natural Sciences
SPECIALTY	101 - Ecology
QUALIFICATION	Master of Ecology, teacher of ecology

Program developers:

Lyko S.M., Candidate of Agricultural Sciences, Professor 

Lysytsia A.V., Doctor of Biological Sciences, Professor 

Lyko D.V., Doctor of Agricultural Sciences, Professor 

By the Department of Ecology, Geography and Tourism
Minutes No. 1 of January 11, 2022
Head of the Department Prof. D.V. Lyko



APPROVED

Educational and Methodological Commission of the Faculty of Psychology and
Natural Sciences
Minutes № 1 of January 25, 2022

Head of the educational and methodological commission
Prof. Syaska. I.O.



Dean of the faculty Prof. Pavelkiv V.R.



University Head of Scientific and Methodological Commission
Prof. Voitovych I.S.



Preface

The educational and professional program is a normative document that regulates the normative, competence, qualification, organizational, educational and methodological requirements for the training of higher education applicants for the Master's degree in the field of knowledge 10 "Natural Sciences" in the specialty 101 "Ecology".

The educational and professional program is based on a competency-based, student-centered and problem-based approach to the training of higher education applicants for Master's degree in the field of knowledge 10 "Natural Sciences", specialty 101 "Ecology".

The program was developed on the basis of the Standard of Higher by the project group in Rivne state University for the Humanities:

Head of educational program:

Lyko Sergij Mykhailovych, Candidate of Agricultural Sciences, Professor of the Department of Ecology, Geography and Tourism, Rivne State University for the Humanities

Project group:

Lysytsia Andrii Valeriiovych, Doctor of Biological Sciences, Professor of the Department of Ecology, Geography and Tourism, Rivne State University for the Humanities

Lyko Dariia Vasylivna, Doctor of Agricultural Sciences, Professor of the Department of Ecology, Geography and Tourism, Rivne State University for the Humanities

Reviews:

Masovets Bohdan Petrovych, Head of the Rivne Regional Center for Hydrometeorology

This educational-professional program may not be fully or partially reproduced, duplicated and distributed without the permission of the Rivne State University of the Humanities.

II. Profile of the master's program	
1 - General information	
Full name of the higher education institution and structural unit	Rivne State University of the Humanities Faculty of Psychology and Natural Sciences Department of Ecology, Geography and Tourism
Level of higher education	Second (master's) level of higher education
Degree of higher education and title of qualification in the original language	Master's degree Master's degree in Ecology, teacher of Ecology
Official name of the educational program	Ecology
Type of diploma and scope of the educational program	single, 90 ECTS credits, the duration of the educational component of the educational and professional program is 1 year 4 months
Availability of accreditation	Certificate of accreditation ND №1889788. Valid until July 1, 2026.
Cycle/level	NQF of Ukraine - level 7, FQ-EHEA - second cycle, EQF-LLL - level 7
Background	The first (bachelor's) level of higher education, the educational qualification level of "specialist", a master's degree obtained in another specialty
Language(s) of instruction	Ukrainian, English
Duration of the educational program	For the term of study
Internet address of the permanent placement of the description of the educational program	http://www.rshu.edu.ua/navchannia/osvitni-prohramy/mahistr.
2 - Objective of the educational program	
Training of highly qualified, competitive specialists with a formed set of knowledge, skills and abilities for effective application in professional activities in the field of ecology, environmental protection and sustainable nature management through theoretical and practical training.	
3 - Characteristics of the educational program	
Subject area (field of knowledge, specialty)	10 – Natural Sciences 101 – Ecology
Orientation of the	Educational and professional program of the second (master's)

educational program	<p>level.</p> <p>The program is focused on the study of basic concepts, concepts, principles of natural sciences, modern ecology and their use for environmental protection, balanced nature management and transition to sustainable development of society.</p> <p>The applicant must master the methods of collecting, processing and interpreting the results of environmental research;</p> <p>Tools and equipment: equipment, hardware, and software necessary for field, laboratory, and remote studies of the structure and properties of ecological systems of different levels and origins.</p>
Main focus of the educational program and specialization	<p>Special education in the field of 10 "Natural Sciences", specialty 101 "Ecology".</p> <p>Key words: ecology, pollutants (toxicants), environmental protection, optimization of nature management, rehabilitation of contaminated areas, environmental control.</p>
Features of the program	<p>Practical training, possible academic mobility and internships at educational institutions abroad.</p> <p>The program is focused on solving complex tasks and problems in the field of ecology, environmental protection and sustainable use of natural resources in the course of professional activities. Particular attention is paid to conducting research and presenting information on the state of the environment in teaching environmental disciplines. The program provides for internships (research and assistantship).</p>
4. Suitability of graduates for employment and further education	
Suitability for employment	<p>Professional activity in the fields of environmental protection technologies and nature protection, at industrial enterprises, higher education institutions, design institutions and research institutes and laboratories, in environmental protection organizations of state authorities and inspection activities for technogenic, environmental and radiological supervision. According to the current version of the National Classifier of Ukraine: Classifier of Occupations (DK 003:2010), a graduate can be employed in positions with the following professional job titles: ecologist (2211.2); environmental auditor (2411.2); environmental expert (2211.2); junior researcher (nature conservation) (2213.1); researcher (nature conservation) (2213.1); environmental education specialist (2211.2).</p>
Further training	<p>The possibility of continuing education at the third (educational and scientific) level of higher education.</p>
5 - Teaching and assessment	
Teaching and	<p>Teaching is based on student-centered learning, self-study,</p>

learning	problem-based learning, etc.
Evaluation	Written and oral examinations, tests, presentations, practices, current and final control, module control, defense of qualification work.
6 - Program competencies	
Integral competence	Ability to solve complex tasks and problems in the field of ecology, environmental protection and sustainable use of natural resources in the course of professional activity or in the process of study, which involves research and/or innovation, characterized by complexity and uncertainty of conditions.
General competencies (GC)	GC01. Ability to learn and master modern knowledge. GC02. Ability to make informed decisions. GC03. Ability to generate new ideas (creativity). GC04. Ability to develop and manage projects. GC05. Ability to communicate in a foreign language. GC06. Ability to search, process and analyze information from various sources. GC07. Ability to motivate people and move towards a common goal.
Professional competencies (PC)	PC09. Awareness of the latest achievements necessary for research and/or innovation in the field of ecology, environmental protection and sustainable use of natural resources. PC10. Ability to apply interdisciplinary approaches in critical thinking about environmental issues. PC11. Ability to use the principles, methods and organizational procedures of research and / or innovation activities. PC12. Ability to apply new approaches to the analysis and forecasting of complex phenomena, critical thinking of problems in professional activities. PC13. Ability to communicate knowledge and own conclusions to specialists and non-specialists. PC14. Ability to manage the strategic development of the team in the process of professional activity in the field of ecology, environmental protection and sustainable use of natural resources. PC15. Ability to organize work related to environmental assessment, environmental protection and optimization of environmental management in conditions of incomplete information and conflicting requirements. PC16. Ability to self-education and advanced training based on innovative approaches in the field of ecology, environmental protection and sustainable use of natural resources. PC17. Ability to independently develop environmental projects through the creative application of existing and generating new ideas.

PC18. Ability to assess the level of negative impact of natural and anthropogenic factors of environmental hazards on the environment and humans.

PC19. Ability to use the modern regulatory framework in the field of environmental protection and nature management.

PC20. Ability to collect, compare, analyze and present information about the state of the environment in teaching environmental disciplines, apply modern innovative methods, approaches and acquired pedagogical, psychological and special professional knowledge.

7 - Program learning outcomes

PLO01. To know and understand the fundamental and applied aspects of environmental sciences.

PLO02. To be able to use conceptual environmental laws in professional activities.

PLO03. To know the basic concepts of natural science, sustainable development and methodology of scientific knowledge at the level of the latest achievements.

PLO 04. To know the legal and ethical norms for assessing professional activities, developing and implementing socially significant environmental projects in the face of conflicting requirements.

PLO05. Demonstrate the ability to organize collective activities and implement complex environmental projects, taking into account available resources and time constraints.

PLO 06. To know the latest methods and tools of environmental research, including methods and tools of mathematical and geographic information modeling.

PLO07. To be able to communicate in a foreign language in scientific, industrial, social and public spheres of activity.

PLO 08. To be able to communicate clearly and unambiguously professional knowledge, own justifications and conclusions to specialists and the general public.

PLO 09. To know the principles of personnel and resource management, basic approaches to decision-making in conditions of incomplete / insufficient information and conflicting requirements.

PLO10. Demonstrate awareness of the latest principles and methods of environmental protection.

PLO 11. To be able to use modern information resources on ecology, nature management and environmental protection.

PLO 12. To be able to assess landscape and biological diversity and analyze the consequences of anthropogenic impact on the environment.

PLO 13. Be able to assess the potential impact of man-made facilities and economic activities on the environment.

PLO 14. Apply new approaches to develop a decision-making strategy in complex and unpredictable conditions.

PLO15. Assess environmental risks in conditions of insufficient information and conflicting requirements.

PLO 16. To choose the optimal strategy of management and/or environmental management depending on environmental conditions.

PO17. Critically comprehend theories, principles, methods and concepts from various

<p>subject areas to solve practical problems and problems of ecology.</p> <p>PLO18. To be able to use modern methods of processing and interpreting information in conducting innovative activities.</p> <p>PLO 19. Be able to independently plan the implementation of an innovative task and formulate conclusions based on its results.</p> <p>PO20. To know the basics of environmental engineering design and environmental impact assessment.</p> <p>PLO21. Demonstrate knowledge of the current regulatory framework in the field of environmental protection and nature management.</p>	
8 - Resource support for the program implementation	
Specific characteristics of staffing	Research and teaching staff who have a level of scientific and professional activity, which is confirmed by the performance of at least four types and results of professional activities of a person (clause 30 of the Licensing Conditions for the Conduct of Educational Activities of 30.12.2015 No. 1187 (as amended by the Resolution of the Cabinet of Ministers of Ukraine No. 347 of 10.05.2018)).
Material and technical support	The implementation of the programs of academic disciplines is provided by the material and technical equipment of classrooms and laboratories, the main list of which includes: computer rooms, specialized training laboratories and classrooms that create conditions for students to acquire special competencies in the specialty 101 Ecology under the educational and professional program "Ecology".
Information and training methodological support	Official website of Rivne State University for the Humanities http://www.rshu.edu.ua/ ; wireless Internet access points; scientific library, reading rooms of Rivne State University for the Humanities; electronic library of Rivne State University for the Humanities: http://library.rshu.edu.ua/ ; didactic materials for independent and individual work of students in the disciplines; internship programs.
9 - Academic mobility	
National credit mobility	Based on bilateral agreements between Rivne State University of Humanities and higher education and research institutions of Ukraine: Research Station of Epizootology of the Institute of Veterinary Medicine of the National Academy of Agrarian Sciences of Ukraine (No. 1 of December 22, 2015); State Institution "Rivne Regional Phytosanitary Laboratory" (No. 6 of 12.11.2018 for a period of 5 years); Rivne Branch of the State Institution "Institute of Soil Protection of Ukraine" (No. 7 dated 10.09.19 for a period of 5 years); National University of Water and Environmental Engineering (No. 1 dated 03.01.2020); Municipal Higher Education Institution Vinnytsia Academy of

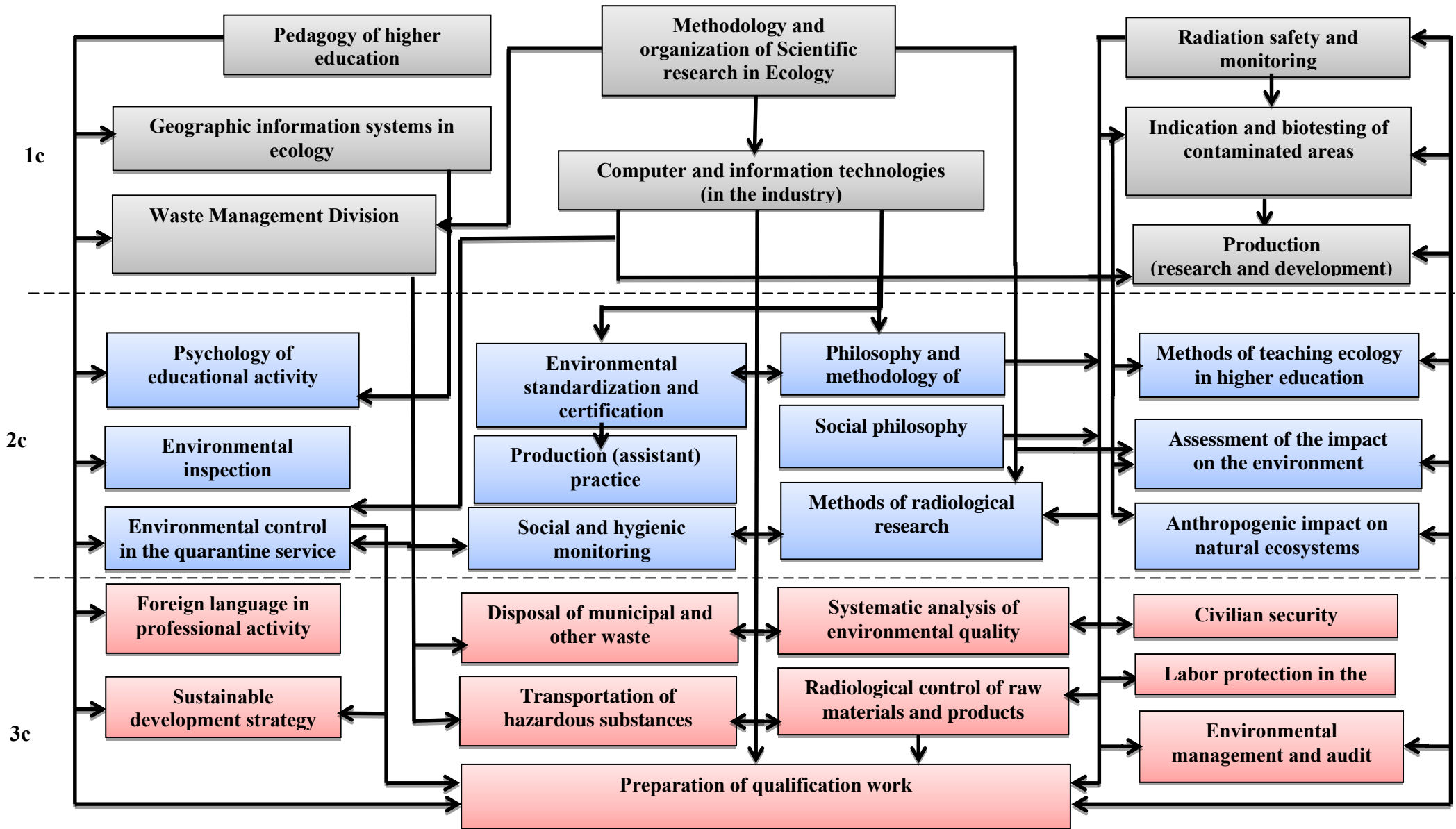
	Continuing Education (No. 13 of 22. 09.2021); National University of Life and Environmental Sciences of Ukraine (No. 14 of 24.09.2021).
International credit mobility	Based on the "Regulation on the Procedure for Realization of the Right to Academic Mobility at RSUH" (https://www.rshu.edu.ua/images/navch/pol_akadem_mob_2019 .pdf) and bilateral agreements between Rivne State University of the Humanities and foreign higher education institutions (http://dir.rshu.edu.ua/partners/).
Training of foreign applicants for higher education	Possible

2. List of components of the educational and professional program and their logical sequence

2.1. List of components

Code n/a	Components of the educational program (academic disciplines, course projects (works) of practice, qualification work)	Number of credits	Form of final control
1	2	3	4
Mandatory components of the OP			
MC01	Foreign language in professional activity	3,0	Exam
MC02	Methodology and organization of scientific research in ecology	3,0	Credit test
MC03	Computer and information technologies (in the field)	3,0	Credit test
MC04	Pedagogy of higher education	3,0	Exam
MC05	Psychology of educational activity	3,0	Credit test
MC06	Environmental impact assessment	5,0	Exam
MC07	Strategy of sustainable development	5,0	Exam
MC08	Indication and biotesting of contaminated areas	3,0	Exam
MC09	Radiation safety and monitoring	3,0	Exam
MC10	Waste management	3,0	Exam
MC11	Geographic information systems in ecology	3,0	Credit test
MC12	System analysis of environmental quality	5,0	Exam
MC13	Methods of teaching ecology in higher education	4,0	Exam
MC14	Production (research) practice	9,0	Credit test
MC15	Production (assistant) practice	6,0	Credit test
MC16	Preparation of qualification work	6,0	Defence
Total amount of mandatory components		67,0	
Selective components of the educational program			
SC01	Philosophy and methodology of science/	3,0	Credit test
SC02	Social philosophy		
SC03	Choice		
SC04	Civil security	3,0	Credit test
SC05	Labor protection in the industry		
SC06	Choice		
SC07	Environmental management and audit	4,0	Credit test
SC08	Radiological control of raw materials and products		
SC09	Selection		
SC10	Social and hygienic monitoring	3,0	Credit test
SC11	Environmental control in the quarantine service		
SC12	Selection		
SC13	Environmental standardization and certification	3,0	Exam
SC14	Methods of radiological research		
SC15	Choice		
SC16	Anthropogenic impact on natural ecosystems	3,0	Credit test
SC17	Environmental inspection		
SC18	Selection		
SC19	Disposal of municipal and other waste	4,0	Credit test
SC20	Transportation of hazardous substances		
SC21	Choice		
Total volume of elective components		23,0	
Total volume of the educational program		90,0	

2.2. Structural and logical diagram of the OP



3. Form of certification of higher education applicants

Form of certification of higher education applicants	Attestation is carried out in the form of a public defense of the qualification work.
Requirements for the qualification work	<p>The qualification work involves the independent solution of complex problems in the field of ecology, environmental protection and sustainable use of natural resources, accompanied by research and/or the application of innovative approaches.</p> <p>The main results of the qualification work must be tested, published and checked for plagiarism.</p> <p>The qualification work must be posted on the website of the higher education institution or its structural subdivision, or in the repository of the higher education institution.</p>

The certification of graduates of the educational and professional program "Ecology", specialty 101 "Ecology" is carried out in the form of a qualification work defense and ends with the issuance of a document of the established sample on awarding a master's degree with the qualification: Master of Ecology, teacher of Ecology.

4. Matrix of correspondence of program competencies to the components of the educational program

	MC01	MC02	MC03	MC04	MC 05	MC06	MC 07	MC 08	MC 09	MC 10	MC 11	MC 12	MC 13	MC 14	MC 15	MC 16	SC 01	SC 02	SC 03	SC 04	SC 05	SC 06	SC 07	SC 08	SC 09	SC 10	SC 11	SC 12	SC 13	SC 14	SC 15	SC 16	SC 17	SC 18	SC 19	SC 20	SC 21	
GC 01	+	+	+	+	+			+	+		+		+	+		+	+		+			+	+		+	+		+	+		+	+		+				
GC 02		+	+	+	+	+	+		+	+		+	+	+		+	+		+	+								+					+		+	+		
GC 03				+	+							+	+	+	+			C				C				C			C				+	C			C	
GC 04		+	+			+	+		+	+																			+									
GC 05	+																	h				h				h			h				h			h		
GC 06	+	+				+		+	+		+		+		+								+			+	+		+	+			+					
GC 07			+	+	+		+						+				+	+										+										
PC 09		+	+			+					+			+	+	+			o			o			o			o	+	+	o	+		o	+		o	
PC 10		+		+	+		+			+		+	+	+	+	+	+	+		+	+			+			+					+						
PC 11		+	+			+			+			+	+	+	+	+						+			+			+										
PC 12							+	+	+			+							i	+		i	+		i			i			i	+		i	+	+	i	
PC 13	+		+	+	+	+								+		+					+						+						+					
PC 14										+					+		+																					
PC 15		+				+			+			+							c	+		c		+	c			c		+	c			c		+	c	
PC 16			+					+					+	+	+	+									+							+						
PC 17						+				+	+			+	+	+	+	+																	+			
PC 18		+				+	+	+	+	+		+		+		+	+	+	e	+		e		+	e			e		+	e			e	+	+	e	
PC 19						+				+													+					+				+						
PC 20				+	+	+							+		+																							

+ - obtaining competence;

MC – EP mandatory components;

SC – EP selective components;

PLO – program learning outcomes;

Choice – educational component of free choice from the base of selective HEE disciplines.

5. Matrix of providing programmatic learning outcomes (PLO) with relevant components of the educational program

	MC 01	MC 02	MC 03	MC 04	MC 05	MC 06	MC 07	MC 08	MC 09	MC 10	MC 11	MC 12	MC 13	MC 14	MC 15	MC 16	SC 01	SC 02	SC 03	SC 04	SC 05	SC 06	SC 07	SC 08	SC 09	SC 10	SC 11	SC 12	SC 13	SC 14	SC 15	SC 16	SC 17	SC 18	SC 19	SC 20	SC 21		
PLO 01		+					+		+			+			+									+			+												
PLO 02								+				+	+	+	+	+											+												
PLO 03		+					+						+		+		+	+	C			C			C		C		+	C			C					C	
PLO 04				+	+	+				+			+		+		+	+								+		+						+			+		
PLO 05		+								+				+	+	+			h	+	+	h			h		h		+	h		+	h	+	+		h		
PLO 06		+	+					+	+		+												+			+	+		+					+					
PLO 07	+																																						
PLO 08	+			+	+	+				+			+		+				o	+	+	o		+	o		o		o		o		+	o			o		
PLO 09									+	+											+		+												+				
PLO 10										+	+		+														+		+			+			+				
PLO 11			+						+	+	+		+		+				i			i		+	i		i	+	i	+	+	+	i				i		
PLO 12						+						+		+	+	+							+								+	+							
PLO 13						+		+	+	+		+								+			+			+					+	+					+		
PLO 14		+					+		+										c	+	+	c	+		c		c		+	c				c				c	
PLO 15		+							+														+	+				+	+										
PLO 16							+																													+			
PLO 17		+						+				+		+					e			e			e		e		e		e			e		+		e	
PLO 18		+	+										+	+		+											+						+						
PLO 19		+											+	+	+	+																							
PLO 20						+		+			+																						+				+		
PLO 21										+														+	+			+		+									

+ - obtaining competence;

MC – EP mandatory components;

SC – EP selective components;

PLO – program learning outcomes;

Choice – educational component of free choice from the base of selective HEE disciplines.

6. Requirements for the availability of an internal quality assurance system quality of higher education

Rivne State University of the Humanities has a system of ensuring the quality of educational activities and the quality of higher education (internal quality assurance system), which provides for the following procedures and activities

1) defining the principles and procedures for ensuring the quality of higher education;

2) monitoring and periodic review of educational programs;

3) annual evaluation of higher education students, research and teaching staff of the higher education institution and regular publication of the results of such evaluations on the official website of the higher education institution, on information stands and in any other way;

4) providing advanced training for pedagogical, scientific and research staff;

5) ensuring the availability of the necessary resources for the organization of the educational process, including independent work of students, 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 higher education and qualifications;

8) ensuring the observance of academic integrity by employees of higher education institutions and higher education students, including the creation and maintenance of an effective system for the prevention and detection of academic plagiarism;

9) other procedures and measures.

The system of ensuring the quality of educational activities and the quality of higher education by a higher education institution (internal quality assurance system) may, upon submission by Rivne State Humanitarian University, be evaluated by the National Agency for Quality Assurance in Higher Education or its accredited independent institutions for evaluation and quality assurance of higher education for its compliance with the requirements for the quality assurance system of higher education approved by the National Agency for Quality Assurance in Higher Education and international standards.

Guarantor of the educational program,
head of the project group



Prof. Lyko S.M.