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**Federal State Autonomous Educational Institution for Higher Education  
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA (RUDN University)  
named after Patrice Lumumba**

*Institute of Environmental Engineering*

Approved at the meeting of the Scientist  
Council of RUDN University  
Protocol No. US-8 dated April 11, 2022

Opened by order of the Rector of  
RUDN University  
No. 257  
dated April 25, 2022

**PROFESSIONAL EDUCATION PROGRAMME OF HIGHER EDUCATION**

Field of Studies/ Speciality:

**05.04.06 Ecology and nature management**

Profile/Specialization of Higher Education Professional Program:

**«Integrated Solid Waste Management» (Network program with L.N.  
Gumilyov Eurasian National University)**

The Educational Programme is developed in compliance with:

**Educational Standard of RUDN University**, approved by Order of the Rector No. 371 dated  
May 21, 2021

Level of education: Master

Graduate's Qualification: Master

Graduate's qualification in accordance with the order of the Ministry of Education and Science of  
Russia dated September 12, 2013 No. 1061

Length of Educational Programme:

2 years

(Full-time education)

(part-time education)

(extramural studies)

Information about the features of the implementation of the main educational program: Network  
program - double degree program. Implemented jointly with the Eurasian National University L.N.  
Gumilyov, in English.

**AGREED**

Head of the Higher Education  
Programme



Popkova A.V.  
\_\_\_\_\_ 2023

Chairperson of the Didactic  
Council



Kharlamova M.D.  
\_\_\_\_\_ 2023

Director of the Institute of  
Environmental Engineering



Savenkova E.V.  
\_\_\_\_\_ 2023

# EDUCATIONAL PROGRAMME DESCRIPTION

## 1. EDUCATIONAL PROGRAMME GOAL (MISSION)

The mission of the Joint Educational Programme «Integrated Solid Waste Management» (in English) is a highly qualified specialist joint training in the field of solid waste management, using innovative programs and new distance learning technologies that guarantee a master's degree graduate high competitiveness in the international labor market, in particular in the SCO countries.

The overall goal of the Joint Educational Programme «Integrated Solid Waste Management» (in English) is to receive professional education in the field of waste management, which allows the graduate to work successfully in the chosen activity field, to possess general cultural, professional and special competencies that contribute to the graduate social mobility and sustainability in the labor market, as well as preparing graduates for self-study and continuous professional self-improvement.

The purpose of the Joint Educational Programme «Integrated Solid Waste Management» (in English) is graduates social and personal qualities formation, contributing to the development of general cultural needs, creative abilities, social adaptation, communication, tolerance, perseverance in achieving goals.

## 2. EDUCATIONAL PROGRAMME RELEVANCE, SPECIFICITY, AND UNIQUENESS

Benchmarking results of similar educational programs is presented below:

University	Programme Title	Number of students	Notes
Glasgow Caledonian University	Environmental Management (Waste, Energy, Water, Oil and Gas)	No data available	It does not provide highly specialized knowledge in the waste management field, since waste management presents 1/5 of the program content.
Ecole des Ponts Paristech	Water, Soil And Waste: Management And Treatment	No data available	It does not provide highly specialized knowledge in the waste management field, since waste management presents 1/3 of the program content.

Distinctive features of the Joint Educational Programme «Integrated Solid Waste Management» (in English) in comparison with the abovementioned programs is presented below:

<b>For students</b>	The opportunity to acquire unique competencies in the various types of waste management throughout the full life cycle
<b>For university</b>	The students contingent in the University of SCO
<b>For the country / region</b>	The highly qualified personnel ready to work in the rapidly developing area of waste management and the circular economy, including in the SCO regions

### **3. LABOUR MARKET NEEDS FOR PERSONNEL TRAINING IN EDUCATIONAL PROGRAMME PROFILE**

Master's program graduates are highly qualified specialists who will be able to work effectively at large industrial enterprises, in higher educational institutions, work in the field of waste management and protect the environment and humans from the negative impact of hazardous waste.

Potential consumers of graduates of the educational program are:

- municipal and regional structures carrying out activities for the environment and natural resources protection;
- municipal and regional structures carrying out activities in the field of production and consumption waste management;
- industrial enterprises of different forms of ownership, laboratories for environmental protection, labor protection;
- research organizations and centers whose activities are related to the development and improvement of innovative technologies for the processing and disposal of production and consumption waste or the solution of environmental problems from their impact;
- public and international organizations and other units related to the production and consumption waste management.

### **5. SPECIAL REQUIREMENTS FOR POTENTIAL APPLICANTS**

Applicants who have the first higher education in the the master's program profile and who wish to improve their professional level and acquire additional competencies can enter the educational program. Also, it is possible to enroll applicants with non-core education in related fields (economics, law, etc.).

Applicant must have the appropriate competencies to Joint Educational Programme «Integrated Solid Waste Management» (in English):

- have English level not lower than Intermediate;
- own a culture of thinking, the ability to generalize, analyze, perceive information, set a goal and choose ways to achieve it;
- be aware of the future profession social significance, have a high motivation to perform professional activities, the ability to find professional solutions, including in non-standard situations, and the willingness to bear responsibility for them;
- be ready to perform professional functions working in a team;
- have basic fundamental training in the field of natural sciences and mathematics,
- be able to apply information technology to solve technical problems,
- be able to use (read) graphic and cartographic documentation;
- be able to navigate the techniques and technologies for protecting the environment and humans from technogenic hazards, to promote the goals and objectives of ensuring the safety of humans and the natural environment in the technosphere;
- know the standards for the levels of permissible negative impacts on humans and the natural environment;
- understand technical documentation related to technological processes;
- be able to read and understand specialized technical literature;
- have experience in participating in research projects in the training field;
- be able to systematize scientific information, process the received data.

## **6. FEATURES OF EDUCATIONAL PROGRAMME IMPLEMENTATION**

6.1. Joint Educational Programme «Integrated Solid Waste Management» (in English) is implemented with elements of distance learning technologies (TEIS, MOOC, lectures / seminars on the Microsoft Teams Platform).

6.2. The language of the Joint Educational Programme «Integrated Solid Waste Management» implementation is English.

6.3. The Educational Programme does not provide for education of people with disabilities.

6.4. Joint Educational Programme «Integrated Solid Waste Management» (in English) is implemented by Federal State Autonomous Educational Institution of Higher Education "Peoples' Friendship University of Russia" together with the L.N. Gumilyov Eurasian National University.

The information about partner organization involved in the Educational Programme implementation:

<b>Name of organization/enterprise</b>	<b>Interaction functionality</b>
Eurasian National University. L.N. Gumilyov	Mastering the programme within the 1st and 4th semesters

6.5. The information on the planned introductory/advanced field internships and (or) research & development internships

<b>Internship</b>	<b>Internship location</b> ( <i>organisation name and location</i> )
Pre-graduate Internship	Joint Stock Company EcoStandard Company group ", Moscow
Pre-graduate Internship	FBU "Rostest-Moscow",
Pre-graduate Internship	HUBER TECHNOLOGIES, Moscow
Pre-graduate Internship	Waste Paper Recyclers League, Moscow
Pre-graduate Internship	Branch of NJSC "State Corporation "Government for Citizens", Nur-Sultan
Pre-graduate Internship	RSE on REM ( Kazgidromet ) of the Ministry of Energy of the Republic of Kazakhstan, Nur-Sultan
Pre-graduate Internship	PIU on RW ( Kazvodkhoz ) Committee for Water Resources of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan, Nur-Sultan
Industrial Internship	JSC "ECOTECHNOLOGIES", Voronezh
Industrial Internship	Moscow waste incineration plant No. 4 "Rudnevo", Moscow
Industrial Internship	Torbeevsky landfill for municipal solid waste, Moscow region, urban district of Lyubertsy, village of Torbeevo
Industrial Internship	Ecoservice LLP , Nur -Sultan
Industrial Internship	ECO-OKO LLP, Nur-Sultan
Industrial Internship	Pavlodar petrochemical plant, Pavlodar
Research Internship	Moscow State University M.V. Lomonosov, Moscow
Research Internship	Togliatti State University (TSU), Togliatti

Research Internship	Kurchatov Institute, Moscow
Research Internship	Joint Institute for High Temperatures, Russian Academy of Sciences, Moscow

## **7. CHARACTERISTICS OF EDUCATIONAL PROGRAMME GRADUATE'S PROFESSIONAL ACTIVITIES**

### **7.1. The field of professional activity of the Educational Programme graduate**

The field(s) of professional activities of the Educational Programme graduate includes design, survey, research, production, marketing, consulting, economic, legal, training, expert departments, bureaus, centers, companies, institutions in the field of ecology and nature management.

Professional activity is aimed at ensuring environmental safety from the all types of waste impact, the comfortable technosphere formation for human life and activity, minimizing the technogenic impact of waste on the natural environment, preserving human life and health through the modern technologies use, control methods, monitoring and forecasting.

### **7.2. The type(s) of professional activities tasks, which the graduate is trained to solve when mastering the Educational Programme**

The graduate of Joint Educational Programme «Integrated Solid Waste Management» (in English) must be prepared for solving professional problems in accordance with the Federal State Educational Standard of Higher Professional Education and the master's program profile focus. A graduate must be proficient in the following types of professional activities, namely, to have knowledge, skills and abilities in the field:

#### **design and production activities:**

- designing standard of environmental measures;
- environmental design, the investment project justification and impact assessment of the planned facilities and economic activity forms in the field of waste management;
- environmental control and monitoring organization;
- environmental problems identification and diagnosis, development of practical recommendations for the natural environment conservation;
- production waste management;

#### **organizational and managerial activities:**

- activities management of the department, sector, working group;

- drawing up final documents based on the production results or scientific task implementation;
- environmental protection management systems development for enterprises and industries;

A graduate of the Joint Educational Programme «Integrated Solid Waste Management» must also have the following **additional professional skills and abilities**:

in the field of **design and production activities**

- use of the waste energy potential as a renewable energy source;
- use of the waste resource potential as a source of secondary material resources;
- biotechnologies use for environmental protection, biodegradation of organic waste, waste bio thermal processing in order to obtain energy;
- carrying out environmental and economic calculations (environmental payments, environmental collection of industrial enterprises within the framework of extended producer responsibility, fines, costs and profitability of activities, etc.)
- the ability to analyze and select the best available technologies (BAT) for the processing, recovery, regeneration and recycling of municipal solid waste (MSW) components and calculate economic profitability when designing small enterprises in the field of MSW management, to put into practice the principles of organizing an economically profitable low-waste and resource-saving production;

in the field of **organizational and managerial activity**:

- improvement of the production and consumption waste management system in the regions of the world;
- effective management of state and commercial enterprises operating in the field of waste management at the level of department, sector, working group;
- sustainable environmental management, evaluation of efficiency and improvement of waste management systems in the world regions;
- programs development for the elimination of accumulated environmental damage (reclamation and reconstruction of closed dumps and MSW landfills, reclamation of lands contaminated with waste from oil production and oil refining, elimination and use of the resource potential of sludge reservoirs, slag dumps, etc.)
- the ability to conduct comprehensive studies of the functioning effectiveness of territorial schemes for the municipal solid waste treatment at the regional and municipal levels

**7.3. The list of generalized labor functions and labor functions which are related to the professional activities of the Educational Programme graduate and are taken into account in the course of its development**

Code and title of occupational standard	Generalized labor functions			Labor functions		
	Code	Title	Qualification level	Type	Code	Qualification level (sublevel)
40.117 "Specialist in environmental safety (in industry)"	C	Measures development and implementation to improve the organization's environmental activities efficiency	6	Conducting an environmental analysis of expansion projects, reconstruction, existing production facilities modernization, new technologies and equipment being created in the organization	C/01.6	6
				Development and environmental economic justification of plans for the introduction of new environmental protection equipment and technologies in the organization	C/03.6	6
				Economic regulation of organization environmental activities	C/05.6	6
				The organization's personnel training organization in the field of environmental safety	C/06.7	6
16.006 "Specialist in the field of waste management"	B	Coordination of activities for the organization and control in the field of production and consumption waste management	6	Control activities in the field of waste management	B/01.6	6
				Infrastructure organization for environmentally safe neutralization and processing of production and consumption waste	B/02.6	6

## 8. REQUIREMENTS FOR EDUCATIONAL PROGRAMME OUTCOMES

8.1. Upon completion of the Educational Programme, the graduate is expected to acquire the following Generic Competences (GCs):

Code and descriptor of generic competence	Code and competence level indicator
<b>GC-1.</b> Able to carry out a problem situations critical analysis based on a	<b>GC-1.1</b> can analyze the problem situation as a system, identifying its components and the links between them



systematic approach, to develop an action strategy.	<b>GC-1.2</b> owns argumentation and develops a meaningful strategy for solving a problem situation based on a systematic and interdisciplinary approach
	<b>GC-1.3</b> knows the basics strategies and identifies possible risks, suggesting ways to eliminate them
<b>GC-2.</b> Able to manage a project at all stages of its life cycle.	<b>GC-2.1</b> can formulate a project task based on the problem posed and a way to solve it
	<b>GC-2.2</b> capable to develop the concept of the project, formulate the goal, objectives, justify the relevance, expected results and scope of their application
	<b>GC-2.3</b> can develop a project implementation plan taking into account possible risks, plans the necessary resources
<b>GC-3.</b> Able to organize and manage the team work, developing a team strategy to achieve the goal.	<b>GC -3.1</b> owns the techniques and methods of teamwork, organizes the selection of team members to achieve the goal;
	<b>GC -3.2</b> capable to organize and adjust the work of the team, including on the basis of collegial decisions
	<b>GC-3.3</b> can delegate authority to team members and distribute assignments, give feedback on the results, take responsibility for the overall result
<b>GC-4.</b> Able to apply modern communication technologies, including foreign language(s) for academic and professional interaction	<b>GC -4.1</b> can establish contacts and organize communication in accordance with the needs of joint activities, using modern communication technologies
	<b>GC-4.2</b> knows the basics of business documentation and uses professional vocabulary in foreign and Russian languages
	<b>GC-4.3</b> capable to organize a results discussion and present the results of research and project activities at various public events in Russian or a foreign language, choosing the most appropriate format.
<b>GC-5.</b> Able to analyze and take into account the diversity of cultures in the intercultural interaction process.	<b>GC -5.1.</b> knows the main categories of philosophy, the laws of historical development, the intercultural communication basics
	<b>GC-5.2</b> is able to communicate in the world cultural diversity and demonstrate mutual understanding between students - representatives of different cultures in compliance with ethical and intercultural standards
	<b>GC -5.3.</b> owns the practical skills of philosophical and historical facts analyzing, evaluating cultural phenomena; ways of analyzing and revising one's views in case of disagreements and conflicts in intercultural communication
<b>GC-6.</b> Able to identify and implement the priorities of their own activities and ways to improve it based on self-esteem.	<b>GC-6.1</b> can evaluate resources and their limits (personal, situational, temporary), use them appropriately
	<b>GC-6.2</b> capable to determine educational needs and ways to improve their own (including professional) activities based on self-assessment
	<b>GC -6.3</b> owns skills building a flexible professional trajectory, taking into account the accumulated

	experience of professional activity, dynamically changing labor market requirements and personal development strategies
<b>GC-7.</b> Able to use digital technologies and methods of searching, processing, analyzing, storing and presenting information (in the field of Ecology and nature management) in the digital economy and modern corporate information culture.	<b>GC-7.1</b> owns the skills of digital technologies use and search methods
	<b>GC-7.2</b> can process, analyze, store and correctly present information
	<b>GC-7.3</b> knows the principles and techniques of modern corporate information culture and the digital economy basics

8.2. Upon completion of the Educational Programme, the graduate is expected to acquire the following general professional competences (GPCs):

<b>Code and descriptor of general professional competence</b>	<b>Code and competence level indicator</b>
<b>GPC-1.</b> Able to use philosophical concepts and methodology of scientific creation in the study of various levels of matter, space and time organization.	<b>GPC-1.1</b> Knows the philosophical concepts of natural science and methodology of scientific creation
	<b>GPC-1.2</b> Able to use in-depth knowledge in the philosophical concepts of natural science in assessing the professional activities consequences
	<b>GPC-1.3</b> Able to apply the acquired knowledge in the research activities, to make correct generalizations and conclusions
<b>GPC-2.</b> Able to use special and new sections of ecology, geoecology and nature management in solving research and applied problems of professional activity.	<b>GPC-2.1</b> Knows the basics of ecology, geoecology, environmental economics and circular economy, as well as environmental management
	<b>GPC-2.2</b> Able to use environmental, economic and other special knowledge and algorithms to solve professional problems
	<b>GPC-2.3</b> Capable of finding, analyzing and competently using latest information and modern techniques in the research and applied tasks performance
<b>GPC-3.</b> Able to apply environmental research methods to solve research and applied problems of professional activity.	<b>GPC-3.1</b> Knows the principles and methods of environmental monitoring related with different environmental components
	<b>GPC-3.2</b> Owns analytical methods of pollutants control, physical impacts and processing of the received information
	<b>GPC-3.3</b> Able to develop environmental monitoring and control systems in production and solve applied problems in professional activities
<b>GPC-4.</b> Able to apply regulatory legal acts and norms of professional ethics in the field of ecology and nature management.	<b>GPC-4.1</b> Knows the environmental regulation and legislation basics in the field of nature management

	<b>GPC-4.2</b> Knows how to use and apply regulatory legal acts in the field of ecology and nature management
	<b>GPC-4.3</b> Able to use the professional ethics norms in their professional activities
<b>GPC-5.</b> Able to solve the problems of professional activity in the field of ecology, nature management and protection using information and communication, including geoinformation technologies.	<b>GPC-5.1</b> Knows how to choose and apply algorithm for solving environmental problems and implements algorithms using software
	<b>GPC-5.2</b> Has the skills to use information technology tools for searching, storing, processing, analyzing and presenting information
	<b>GPC-5.3</b> Able to process earth remote sensing data and use cartographic materials, owns modern GIS technologies
<b>GPC-6.</b> Able to design, represent, protect and disseminate the results of their professional activities, including research.	<b>GPC-6.1</b> Able to receive, analyze, summarize the necessary scientific information using modern research methods, present their own results in the form of scientific articles and public speeches
	<b>GPC-6.2</b> Possesses the skills of oral report and presentation with regards to the project and scientific activities results
	<b>GPC-6.3</b> Knows methodological foundations of scientific research, copyright and scientific ethics requirements

8.3. Upon completion of the Educational Programme, the graduate is expected to acquire the following professional competences (PCs)\*

<b>Code and descriptor of professional competence</b>	<b>Code and competence level indicator</b>	<b>Code and title of occupational standard for relevant PC</b>
<b>In organizational and managerial activities :</b>		
<b>PC-1</b> Able to organize and manage the enterprise activities using in-depth knowledge in the field of environmental management	<b>PC-1.1</b> Knows the basics and principles of production management, the legal framework for effective environmental management, including production and consumption waste management	<b>40.117 "Specialist in environmental safety (in industry)"</b>
	<b>PC-1.2</b> Able to organize the management of research, scientific and production and expert-analytical work at the enterprise	<b>40.117 "Specialist in environmental safety (in industry)"</b>
<b>PC-2</b> Able to develop and economically justify plans for the introduction of new equipment	<b>PC-2.1</b> Has the skills to select and implement the best available technologies (BAT) for the	<b>40.117 "Specialist in environmental safety (in industry)"</b>

and technologies to ensure minimal waste impact on the environment	processing and recycling of production and consumption waste	
	<b>PC-2.2</b> Can economically justify plans for the introduction of new equipment and technologies for waste management, using them as a secondary resource	<b>40.117 "Specialist in environmental safety (in industry)"</b>
	<b>PC-2.3</b> Capable of minimizing the waste impact on the environment	<b>40.117 "Specialist in environmental safety (in industry)"</b>
<b>PC-3</b> Able to develop measures for the economic regulation of the organization's environmental activities	<b>PC-3.1</b> Able to predict socio-economic development based on environmental forecasts	<b>40.117 "Specialist in environmental safety (in industry)"</b>
	<b>PC-3.2</b> Knows how to determine the economic effect of the measures application aimed at ensuring the enterprise environmental safety	<b>40.117 "Specialist in environmental safety (in industry)"</b>
<b>In design and production activities :</b>		
<b>PC-4</b> Capable of assessing the impact of economic activity on the environment	<b>PC-4.1</b> Able to conduct an environmental impact assessment (EIA) of the designed enterprise and facilities, predict and evaluate negative consequences	<b>40.117 "Specialist in environmental safety (in industry)"</b>
	<b>PC-4.2</b> Able to develop standard environmental measures	<b>40.117 "Specialist in environmental safety (in industry)"</b>
	<b>PC-4.3</b> Possesses the skills of environmental design and preparation with regards to special documentation at the pre-project stage of the project life cycle	<b>40.117 "Specialist in environmental safety (in industry)"</b>
<b>PC-5</b> Able to analyze the causes and minimize the consequences of the production negative impact on the environment	<b>PC-5.1</b> Able to identify the causes and sources of harmful substances entering the environment and the causes and sources of solid waste generation	<b>40.117 "Specialist in environmental safety (in industry)"</b>
	<b>PC-5.2</b> Has the skills to prepare proposals to eliminate the causes and eliminate the negative consequences of the impact	<b>40.117 "Specialist in environmental safety (in industry)"</b>
	<b>PC-5.3</b> Ensures the plans implementation for environmental protection measures and the elimination of accumulated environmental damage objects to the environment, including the existing waste disposal sites reclamation, lands after the elimination of unauthorized dumps, etc.	<b>40.117 "Specialist in environmental safety (in industry)"</b>

<b>PC-6</b> Able to coordinate activities for the organization and control in the field of production and consumption waste management	<b>PC-6.1</b> Capable of monitoring activities in the field of waste management	<b>40.117 "Specialist in environmental safety (in industry)"</b>
	<b>PC-6.2</b> Has the skills to organize the infrastructure for environmentally safe disposal and processing of production and consumption waste	<b>40.117 "Specialist in environmental safety (in industry)"</b>

**9. MATRIX OF COMPETENCES that students acquire** when mastering the Educational Programme «**Integrated Solid Waste Management**», implemented under the RUDN University Academic Council decision dated "11" April 2022 (Protocol No. US-8 in the field of studies Ecology and Nature Management)

Code	Courses/modules that form students' competences	GENERIC COMPETENCES						
		GC-1 . Able to search, critical analysis of problem situations based on a systematic approach, develop an action strategy.	GC-2. Able to manage a project at all stages of its life cycle.	GC-3 . Able to organize and manage the work of the team, developing a team strategy to achieve the goal.	GC-4. Able to apply modern communication technologies in the state language of the Russian Federation and foreign language( s ) for academic and professional interaction.	GC-5 . Able to analyze and take into account the diversity of cultures in the process of intercultural interaction.	GC-6 . Able to identify and implement the priorities of their own activities and ways to improve it based on self-assessment.	GC-7 . Able to use digital technologies and methods of searching, processing, analyzing, storing and presenting information (in the field of Ecology and nature management) in the digital economy and modern corporate information culture
<b>Block 1</b>	<b>Mandatory part</b>							
B1.O.05	Methodology of Scientific Creation	GC-1.1-1.3	GC-2.1-2.3	GC-3.1-3.2			GC-6.1-6.2	GC-7.2
B1.O.03	IT in Ecology and Natural Resources Management		GC-2.1-2.4					GC-7.1-7.3
B1.O.02	Foreign Language (professional)			GC-3.1-3.2		GC-5.1-5.3		
B1.O.04	International Cooperation in the field of Nature Protection			GC-3.1-3.2		GC-5.1-5.3		
B1.O.01	Higher School Pedagogy				GC-4.1-4.4	GC-5.1-5.3		
	<b>Core component</b>							
B1.B.01	Nature Protection and Accumulated Environmental			GC-3.1-3.2				GC-7.1-7.3

	Damage (AED) Elimination Tools							
B1.V.06	Regional & Municipal MSW Management Systems			GC-3.1-3.2				
	<b>Variable component</b>							
B1.V.DV.03.01	Environmental Control and MSW Monitoring Programs	GC-1.1-1.3					GC-6.1-6.2	
B1.V.DV.03.02	Physicochemical Methods of Waste Testing	GC-1.1-1.3					GC-6.1-6.2	
B1.V.DV.01.01	Mapping and GIS Technologies in MSW Management							GC-7.1-7.3
B1.V.DV.01.02	Remote Sensing of MSW objects							GC-7.1-7.3
<b>Block 2</b>	<b>Internship</b>							
B2.V.01(R)	Industrial / Pedagogical Internship	GC-1.1-1.3	GC-2.1-2.4	GC-3.1-3.2	GC-4.1-4.4	GC-5.1-5.3	GC-6.1-6.2	GC-7.1-7.3
B 2. V .02(Pd)	Pre-graduate Internship	GC-1.1-1.3	GC-2.1-2.4	GC-3.1-3.2	GC-4.1-4.2	GC-5.2-5.3	GC-6.1	GC-7.1-7.3
B2.O.01.02(N)	Research work in the term including projects	GC-1.3	GC-2.2-2.3		GC-4.1-4.3			
B2.O.01.01(P)	R&D		GC-2.1-2.4	GC-3.1-3.2			GC-6.1-6.2	
<b>Block 3</b>	<b>Final State Examination</b>	GC-1.1-1.3	GC-2.1-2.4	GC-3.1-3.2	GC-4.1-4.4	GC-5.1-5.3	GC-6.1-6.2	GC-7.1-7.3
B3.01	State Exam	GC-1.1-1.3	GC-2.1-2.4	GC-3.1-3.2	GC-4.1-4.4	GC-5.1-5.3	GC-6.1-6.2	GC-7.1-7.3
B3.02	Degree Diploma	GC-1.1-1.3	GC-2.1-2.4	GC-3.1-3.2	GC-4.1-4.4	GC-5.1-5.3	GC-6.1-6.2	GC-7.1-7.3

**GENERAL PROFESSIONAL COMPETENCES**

Code	Courses/modules that form students' competences	GPC-1. Able to use philosophical concepts and methodology of scientific knowledge in the study of various levels of organization of matter, space and time.	GPC-2, Able to use special and new sections of ecology, geocology and nature management in solving research and applied problems of professional activity.	GPC-3, Able to apply environmental research methods to solve research and applied problems of professional activity.	GPC-4 Able to apply regulatory legal acts in the field of ecology and nature management, norms of professional ethics.	GPC-5 Able to solve the problems of professional activity in the field of ecology, nature management and nature protection using information and communication, including geoinformation technologies	GPC-6, Able to design, present, protect and disseminate the results of their professional activities, including research.
<b>Block 1</b>	<b>Mandatory part</b>						
B1.O.03	IT in Ecology and Natural Resources Management					GPC-5.1 - GPC-5.3	
B1.O.04	International Cooperation in the field of Nature Protection					GPC-5.1 - GPC-5.3	
	<b>Core component</b>						
B1.V.02	MSW Recycling and Utilization Technics	GPC-1.1 - GPC-1.4	GPC-2.1 - GPC-2.5				
B1.B.03	Landscape and Geochemical Aspects of Waste Impact		GPC-2.1 - GPC-2.3			GPC-5.1 - GPC-5.3	
B1.V.06	Regional & Municipal MSW Management Systems		GPC-2.1 - GPC-2.5			GPC-5.1 - GPC-5.3	
B1.B.07	Biological and Sanitary Safety of Waste Management			GPC-3.1-GPC-3.5		GPC-5.1 - GPC-5.3	
B1.B.01	Nature Protection and Accumulated Environmental Damage (AED) Elimination Tools				GPC-4.1-GPC-4.3		
B1.V.05	National and International Aspects of Radioactive Waste Management				GPC-4.1-GPC-4.3	GPC-5.1 - GPC-5.3	



B1.V.04	Waste Ecotoxicokinetics					GPC-5.1 - GPC-5.3	
	<b>Variable component</b>						
B1.V.DV.02.01	Basics of Circular Economics		GPC-2.1 - GPC-2.5				
B1.V.DV.02.02	Green Economy and Tools for Enterprises Sustainable Development		GPC-2.1 - GPC-2.5				
B1.V.DV.01.01	Mapping and GIS technologies in MSW Management			GPC-3.1-GPC-3.5		GPC-5.1 - GPC-5.3	
B1.V.DV.01.02	Remote Sensing of MSW Objects			GPC-3.1-GPC-3.5		GPC-5.1 - GPC-5.3	
B1.V.DV.03.01	Environmental Control and MSW Monitoring Programs			GPC-3.1-GPC-3.5	GPC-4.1-GPC-4.3		
B1.V.DV.03.02	Physicochemical Methods of Waste Testing			GPC-3.1-GPC-3.5	GPC-4.1-GPC-4.3		
<b>Block 2</b>	<b>Internship</b>						
B2.V.01(P)	Industrial / Pedagogical Internship	GPC-1.1 - GPC-1.4	GPC-2.1 - GPC-2.5	GPC-3.1-GPC-3.5	GPC-4.1-GPC-4.3	GPC-5.1 - GPC-5.3	GPC-6.1-6.3
B 2. V .02(Pd)	Pre-graduate Internship	GPC-1.1 - GPC-1.4	GPC-2.1 - GPC-2.5	GPC-3.1-GPC-3.5	GPC-4.1-GPC-4.3	GPC-5.1 - GPC-5.3	GPC-6.1-6.3
B2.O.01.02(N)	Research work in the term including projects	GPC-1.1 - GPC-1.4	GPC-2.1 - GPC-2.5	GPC-3.1-GPC-3.5	GPC-4.1-GPC-4.3	GPC-5.1 - GPC-5.3	GPC-6.1-6.3
B2.O.01.01(P)	R&D		GPC-2.1 - GPC-2.5	GPC-3.1-GPC-3.5	GPC-4.1-GPC-4.3	GPC-5.1 - GPC-5.3	GPC-6.1-6.3
<b>Block 3</b>	<b>Final State Examination</b>	GPC-1.1-GPC-1.4	GPC-2.1-GPC-2.5	GPC-3.1-GPC-3.5	GPC-4.1-GPC-4.3	GPC-5.1-GPC-5.3	GPC-6.1-6.3
B3.01	State Exam	GPC-1.1-GPC-1.4	GPC-2.1 - GPC-2.5	GPC-3.1-GPC-3.5	GPC-4.1-GPC-4.3	GPC-5.1 - GPC-5.3	GPC-6.1-6.3
B3.02	Degree Diploma	GPC-1.1-GPC-1.4	GPC-2.1 - GPC-2.5	GPC-3.1-GPC-3.5	GPC-4.1-GPC-4.3	GPC-5.1 - GPC-5.3	GPC-6.1-6.3

Code	Courses/modules that form students' competences	PROFESSIONAL COMPETENCES					
		PC-1 Able to organize and manage the activities of the enterprise using in-depth knowledge in the field of environmental management	PC-2 Able to develop and economically justify plans for the introduction of new equipment and technologies to ensure minimal impact of waste on the environment	PC-3 Able to develop measures for the economic regulation of the organization's environmental activities	PC-4 Capable of assessing the impact of economic activity on the environment	PC-5 Able to analyze the causes and minimize the consequences of the negative impact of production on the environment	PC-6 Able to coordinate activities for the organization and control in the field of production and consumption waste management
<b>Block 1</b>	<b>Mandatory part</b>						
B1.O.0 3	IT in Ecology and Natural Resources Management				PC-4.1-PC-4.3		
B1.O.0 4	International Cooperation in the field of Nature Protection				PC-4.1-PC-4.3		
<b>Core component</b>							
B1.B.01	Nature Protection and Accumulated Environmental Damage (AED) Elimination Tools	PC-1.1-PC-1.2					PC - 6.1 -PC - 6.3
B1.V.0 2	MSW Recycling and Utilization Technics		PC-2.1-PC-2.4				
B1.B.03	Landscape and Geochemical Aspects of Waste Impact			PC-3.1-PC-3.3			PC - 6.1 -PC- 6 . 2
B1.V.0 4	Waste Ecotoxicokinetics			PC-3.1-PC-3.2			PC - 6.1 -PC- 6 . 2
B1.V.0 5	National and International Aspects of Radioactive Waste Management			PC-3.1-PC-3.3			PC - 6.1 -PC - 6.3
B1.V.0 6	Regional & Municipal MSW Management Systems			PC-3.1-PC-3.3			PC - 6.1 -PC - 6.3
B1.B.07	Biological and Sanitary Safety of Waste Management			PC-3.1-PC-3.3			PC - 6.1 -PC - 6.3
<b>Variable component</b>							

B1.V.D V.01.01	Mapping and GIS technologies in MSW Management management					PC-5.1-PC-5.3	
B1.V.D V.01.02	Remote sensing of MSW objects					PC-5.1-PC-5.3	
B1.V.D V.02.01	Basics of Circular Economics						PC - 6.1 -PC - 6.3
B1.V.D V.02.02	Green Economy and Tools for Enterprises Sustainable Development						PC - 6.1 -PC - 6.3
<b>Block 2</b>	<b>Internship</b>						
B2.V.0 1(R)	Industrial / Pedagogical Internship		PC-2.1-PC-2.4	PC-3.1-PC-3.3		PC-5.1-PC-5.3	PC - 6.1 -PC - 6.3
B 2. V .02(Pd)	Pre-graduate Internship	PC-1.1	PC-2.1-PC-2.3	PC-3.1	PC-4.1-PC-4.2	PC-5.1-PC-5.3	PC - 6.1 -PC - 6.3
B2.O.0 1.02(N)	Research work in the term including projects	PC-1.1-PC-1.2	PC-2.1-PC-2.4	PC-3.1-PC-3.3	PC-4.1-PC-4.3	PC-5.1-PC-5.3	PC - 6.1 -PC - 6.3
B2.O.0 1.01(P)	R&D			PC-3.1-PC-3.3	PC-4.1-PC-4.3	PC-5.1-PC-5.3	PC - 6.1 -PC - 6.3
<b>Block 3</b>	<b>Final State Examination</b>	PC-1.1-PC-1.2	PC-2.1-PC-2.4	PC-3.1-PC-3.3	PC-4.1-PC-4.3	PC-5.1-PC-5.3	PC-6.1-PC-6.3
B3.01	State Exam	PC-1.1-PC-1.2	PC-2.1-PC-2.4	PC-3.1-PC-3.3	PC-4.1-PC-4.3	PC-5.1-PC-5.3	PC - 6.1 -PC - 6.3
B3.02	Degree Diploma	PC-1.1-PC-1.2	PC-2.1-PC-2.4	PC-3.1-PC-3.3	PC-4.1-PC-4.3	PC-5.1-PC-5.3	PC - 6.1 -PC - 6.3