

**Федеральное государственное автономное образовательное учреждение
высшего образования «Российский университет дружбы народов»**

Институт экологии

(наименование основного учебного подразделения (ОУП) – разработчика ОП ВО)

Утверждена на заседании Ученого
совета РУДН протокол № 1
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**ОСНОВНАЯ ПРОФЕССИОНАЛЬНАЯ ОБРАЗОВАТЕЛЬНАЯ ПРОГРАММА
ВЫСШЕГО ОБРАЗОВАНИЯ (ОП ВО)**

Направление подготовки/специальность:

05.04.06 Экология и природопользование

(код и наименование направления подготовки/специальности)

Направленность (профиль/специализация):

**Economics of natural resources management / Экономика управления природными
ресурсами**

(наименование ОП ВО)

Образовательная программа разработана в соответствии с требованиями:

ОС ВО РУДН, утвержденного приказом ректора № 371 от «21» мая 2021 г.

Уровень образования:

магистратура

(бакалавриат/специалитет/магистратура/ординатура – вписать нужное)

Квалификация выпускника:

магистр

(квалификация выпускника в соответствии с приказом Минобрнауки России от 12.09.2013 г.
№1061)

Срок получения образования по ОП ВО:

2 года

(очная форма обучения)

(очно-заочная форма
обучения)

(заочная форма
обучения)

Сведения об особенностях реализации программы: **реализуется на английском языке**

СОГЛАСОВАНО:

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2022 г.

DESCRIPTION OF THE HIGHER EDUCATION PROGRAM

1. PURPOSE (MISSION) OF THE HIGHER EDUCATION PROGRAM

The objective of the higher education program “Economics of natural resources management” is to train highly sought after in the labor market professionals with an active lifestyle, broad erudition, high level of theoretical training, practice-oriented skills and knowledge of environmental problems and solutions in the field of wildlife management objectives. The higher education program develops students' responsible attitude to take decisions in their professional activities, upholding environmental interests. Education the program is aimed at the formation of general cultural (universal), of general and professional competencies in accordance with the requirements to the higher education program towards training 05.04.06 – Ecology and environmental management.

In the field of training, the overall goal of the higher education program “Economics of natural resources management” (in English) is to obtain a professional education in the field of environmental management, allowing the graduate to work successfully in the chosen field of activity, to have general cultural, professional and special competencies that contribute to social graduate mobility and stability in the labor market, as well as preparing graduates for self-study and continuous professional self-improvement.

In the field of education, the purpose of this program is the formation of social and personal qualities of undergraduates, contributing to the strengthening of morality, the development of general cultural needs, creative abilities, social adaptation, communication, tolerance, perseverance in achieving goals.

2. RELEVANCE, SPECIFICITY, UNIQUENESS OF THE EDUCATIONAL PROGRAM

The active development of the international scientific and industrial partnership in various fields of activity, the severity of environmental problems in the most dynamically developing sectors of our countries, the need to preserve and restore unique natural objects require the training of modern environmental specialists who would be well aware of the theoretical issues of environmental management and would have sufficient practical competencies for solving professional problems. It is on the training of such specialists that the program "Economics of natural resources management" is oriented.

The uniqueness of the program is due to its complex nature: it combines the disciplines of the natural sciences and economics and management areas. The program is implemented in English. The qualifications of graduates of the economics of natural resources management program are most fully characterized by a list of their competencies and skills:

In research activities:

□ use of modern methods of processing and interpretation of environmental information in the course of scientific and industrial research;

□ possession of the basics of design, expert-analytical activities and research using modern approaches and methods, equipment and computer systems;

□ the ability to creatively use in scientific and industrial and technological activities the knowledge of fundamental and applied sections of special disciplines of the master's program;

- the ability to formulate problems, tasks and methods of scientific research, to obtain new reliable facts based on observations, experiments, scientific analysis of empirical data, to abstract scientific works, to compile analytical reviews of accumulated information in world science and production activities, to generalize the results obtained in the context of previously accumulated in science of knowledge and formulate conclusions and practical recommendations based on representative and original research results

In organizational and managerial activities: to organize and manage research and development and expert-analytical work using in-depth knowledge in the field of environmental management.

3. LABOR MARKET NEED FOR TRAINING BY THE PROFILE OF THE HIGHER EDUCATIONAL PROGRAM

A master studying under the educational program "Economics of natural resources management" is preparing for the following types of professional activities:

- research;
- organizational and managerial.

Graduates of the master's program 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:

- International organizations in the field of environmental safety, sustainable development, natural resource management, environmental education and research;
- Design, survey, research, production, marketing, consulting, economic, legal, training, expert departments, departments, bureaus, centers, companies, institutions in the field of ecology and nature management;
- National and regional authorities for nature protection and management of natural resources (Ministry of Natural Resources of the Russian Federation, other environmental departments and institutions);

– Federal and regional institutions of the Ministry of Regional Development of the Russian Federation, the Ministry of Emergency Situations of the Russian Federation, the Ministry of Economic Development and Trade of the Russian Federation, the Federal Agency for Construction and Housing and Communal Services of the Russian Federation, the Ministry of Health and Social Development of the Russian Federation, the Ministry of Education and Science of the Russian Federation, the Ministry of Agriculture the Russian Federation and their subordinate Federal services and agencies; as well as the Federal Service for Hydrometeorology and Environmental Monitoring, the Federal Agency for Atomic Energy, the Federal Agency for Tourism, and other departments and institutions;

– Bodies of power and administration of subjects of the Russian Federation, municipalities; academic and departmental research organizations; educational organizations of secondary general, secondary vocational and higher education, as well as public education; mass media; public organizations and foundations; representative offices of foreign companies.

5. SPECIAL REQUIREMENTS FOR POTENTIAL APPLICANTS

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

The applicant must have the appropriate competencies to master the program "Economics of natural resources management" (in English):

- speak English at a 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 social significance of their future profession, 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 when 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 read and understand specialized technical literature.
- have experience of participating in research projects in the field of training,
- be able to systematize scientific information, process the received data.

6. FEATURES OF THE IMPLEMENTATION OF THE HIGHER EDUCATIONAL PROGRAM

6.1. EP HE is implemented with elements of distance learning technologies (TEIS, MOOC, lectures/seminars on the Microsoft Teams platform).

6.2. The language of implementation of the higher educational program is English

6.3. The program does not provide for the training of people with disabilities and people with disabilities.

Information about partner organizations involved in the implementation of the higher educational program (educational and scientific organizations, enterprises, etc.)

Organization	Interaction functionality
Joint Stock Company EcoStandard group company Rosprirodnadzor ISEDC UNESCO Fracom LLC ANO MC RPPNSh	Place of practice

6.5. Информация о планируемых местах проведения практик

№	Name of practices	Place of practice (наименование организации, город)
1	Undergraduate practice	Joint Stock Company EcoStandard group company
2	Undergraduate practice	Federal Service for Supervision in sphere of nature management
3	Undergraduate practice	ISEDC UNESCO
4	Undergraduate practice	Fracom LLC
5	Undergraduate practice	ANO MC RPPNSh

7. CHARACTERISTICS OF THE PROFESSIONAL ACTIVITY OF THE GRADUATE OF THE HIGHER EDUCATIONAL PROGRAM

7.1. Field of professional activity of the graduate

The area of professional activity:

- design, development, research, production, marketing, consulting, economic, legal, educational and expert divisions, departments, bureaus, centers, firms, companies, institutions;

- The federal and regional nature conservation and environmental authorities (Ministry of Natural Resources and other environmental authorities and institutions);

- The federal and regional agencies of the Ministry of Regional Development, the Ministry of Emergency Situations, Ministry of Economic Development and Trade of the Russian Federation, Federal Agency for Construction and Housing and Communal Services, Ministry of

Health and Social Development, Ministry of Culture and Mass Communications of the Russian Federation, Ministry of Education and science, the Ministry of agriculture of the Russian Federation and their subordinate federal services and agencies, as well as the Federal service for

Hydrometeorology and Environmental monitoring, the Federal Atomic energy agency, the Federal agency for Tourism, the Federal service of the Russian security and other departments and agencies;

- the authority and control of the RF subjects and municipalities; academic and institutional research organizations; educational organizations of secondary, secondary vocational and higher education, and public awareness; media and communication; social organizations and foundations; representation of foreign companies.

Specifics of professional activity of graduates due to their training. This activity on the organization of learning and ensuring the rational use of natural resources, protection of wildlife, landscapes, environmental maintenance of economic activity in production and non-production sphere, education and training in sustainable development activities in the field of collection, analysis and dissemination of environmentally relevant information.

7.2. Types of tasks of professional activity, for the solution of which the graduate is preparing as part of the development of the educational program

Master of the Ecology and Environmental Management is prepared to address the following professional tasks in accordance with the professional activities:

Research activities:

- Identification of problems, objectives and methods of scientific research; new information on the basis of observations, experiments, scientific analysis of empirical data;
- abstracting of scientific papers, preparation of analytical reviews of data accumulated in the world of science and production activities;
- generalization of the results obtained in the context of previously accumulated knowledge in science; • formulation of conclusions and practical recommendations based on representative and original research results;
- Conduct comprehensive research branch, regional, national and global environmental problems, the development of recommendations for their resolution;
- condition assessment, sustainability and forecast of natural systems; assessment of the state of health of the population and the region's key demographic trends on available statistical reporting data;

Design and production activities:

- designing standard of environmental protection measures; impact assessment of the planned construction or other forms of economic activity on the environment; implementation of environmental monitoring;
- Analysis of private and common problems of natural conditions and resources, environmental management;
 - detection and diagnosis of the problems of nature conservation, the development of practical recommendations for the conservation of the natural environment; Waste management.

7.3. The list of generalized labor functions and labor functions related to the professional activities of the program graduate, in accordance with which the program was developed

Code and name of prof. standard	Generalized labor functions			Labor functions		
	Code	Name	skill level	Name	Code	Level (sublevel of qualification)
40.117 "Environmental safety specialist (in industry)"	C	Development and implementation of measures to improve the efficiency of the organization's environmental activities	6	Conducting an environmental analysis of expansion projects, reconstruction, modernization of existing production facilities, new technologies and equipment being created in the organization	C/01.6	6
				Environmental support for the production of new products in the organization	C/02.6	6
				Development and environmental and economic justification of plans for the	C/03.6	6

				introduction of new environmental protection equipment and technologies in the organization		
				Establishing the causes and consequences of accidental releases and discharges of pollutants into the environment, preparing proposals to prevent negative consequences	C/04.6	6
				Economic regulation of environmental activities of the organization	C/05.6	6
				Organization of training of the organization's personnel in the field of environmental safety	C/06.7	6

8. REQUIREMENTS FOR THE RESULTS OF MASTERING THE HIGHER EDUCATION PROGRAM

8.1. At the end of the development of the EP HE, the graduate must have the following general competencies (GK):

Competence code	Code and name of the competence achievement indicator
GC-1 - able to carry out a critical analysis of problem situations based on a systematic approach, to develop a strategy of actions.	GC-1.1 able to analyze a problem situation as a system, identifying its components and the connections between them
	GC-1.2 possesses argumentation and develops a meaningful strategy for solving a problem situation based on systemic and interdisciplinary approaches
	GC-1.3 knows the basics of the strategy and identifies possible risks, suggesting ways to eliminate them
GC-2 - able to manage the project at all stages of its life cycle.	GC-2.1 able to formulate a project task based on the problem posed and the way to solve it
	GC-2.2 able to develop a project concept, formulates a goal, tasks, justifies the relevance, expected results and scope of their application
	GC-2.3 knows how to develop a project implementation plan taking into account possible risks, plans the necessary resources
GC-3 - able to organize and manage the work of the team, developing a team	GC-3.1 knows the techniques and methods of teamwork, organizes the selection of team members to achieve the

strategy to achieve the goal	goal
	GC -3.2 able to organize and adjust the work of the team, including on the basis of collegial decisions
	GC-3.3 able to delegate authority to team members and distributes assignments, gives feedback on the results, takes responsibility for the overall result
GC-4. Able to apply modern communication technologies, including in a foreign language(s) for academic and professional interaction	GC-4.1 able to establish contacts and organize communication in accordance with the needs of joint activities, using modern communication technologies
	GC -4.2 knows the basics of business documentation and uses professional vocabulary in foreign and Russian languages
	GC -4.3 able to organize discussion of results and present the results of research and project activities at various public events in Russian or a foreign language, choosing the most appropriate format
GC-5 able to analyze and take into account the diversity of cultures in the process of intercultural interaction.	GC-5.1. knows the main categories of philosophy, the laws of historical development, the basics of intercultural communication
	GC-5.2 able to communicate in the world of cultural diversity and demonstrate mutual understanding between students from different cultures in compliance with ethical and intercultural norms
	GC-5.3. has practical skills in analyzing philosophical and historical facts, assessing cultural phenomena; ways of analyzing and revising his views in case of disagreements and conflicts in intercultural communication
GC-6 - able to determine and implement the priorities of his own activities and ways to improve it based on self-assessment.	GC-6.1 able to assess his resources and their limits (personal, situational, temporary), makes reasonable use of them
	GC-6.2 able to identify educational needs and ways to improve their own (including professional) activities based on self-assessment
	GC-6.3 has the skills to build a flexible professional trajectory, taking into account the accumulated experience of professional activity, dynamically changing requirements of the labor market and personal development strategy
GC-7. able to use digital technologies and methods of search, processing, analysis, storage and presentation of information (in the field of ecology and nature management) in the digital economy and modern corporate information culture.	GC--7.1 has skills in using digital technologies and search methods
	GC--7.2 is able to process, analyze, store and correctly present information
	GC--7.3 knows the principles and techniques of modern corporate information culture and the basics of the digital economy

8.2. At the end of the program, the graduate must have the following general professional competencies (GPC):

Competence code	Code and name of the competence achievement indicator
GPC-1. Able to use philosophical concepts and methodology of scientific knowledge in the study of various levels	GPC -1.1 Knows the philosophical concepts of natural science and the methodology of scientific knowledge,
	GPC -1.2 Able to use in-depth knowledge of the

of organization of matter, space and time.	philosophical concepts of natural science in assessing the consequences of their professional activities
	GPC -1.3 Able to apply the acquired knowledge in their research activities, to make correct generalizations and conclusions
GPC -2. Able to use special and new sections of ecology, geoecology and nature management in solving research and applied problems of professional activity.	GPC -2.1 Knows the basics of ecology, geoecology, environmental economics and circular economy, as well as environmental management
	GPC -2.2 Able to use environmental, economic and other special knowledge and algorithms to solve professional problems
	GPC -2.3 Able to find, analyze and competently use the latest information and modern techniques in the performance of research and applied tasks
GPC -3. Able to apply environmental research methods to solve research and applied problems of professional activity.	GPC -3.1 Knows the principles and methods of environmental monitoring of environmental components
	GPC -3.2 Owns analytical methods for monitoring pollutants and physical impacts and processing the information received
	GPC -3.3 Able to develop systems for environmental monitoring and control in production and solve applied problems in professional activities
GPC -4. Able to apply regulatory legal acts and norms of professional ethics in the field of ecology and nature management.	GPC -4.1 Knows the basics of environmental regulation and the basics of legislation in the field of nature management
	GPC -4.2 Knows how to use and apply regulatory legal acts in the field of ecology and nature management
	GPC -4.3 Able to use the norms of professional ethics in their professional activities
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 -5.1 Knows how to choose and apply an algorithm for solving environmental problems and implements algorithms using software
	GPC -5.2 Able to use information technology tools to search, store, process, analyze and present information
	GPC -5.3 Knows how to process Earth remote sensing data and use cartographic materials, owns modern GIS technologies
GPC -6 Able to design, represent, protect and disseminate the results of their professional activities, including research.	GPC -6.1 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
	GPC -6.2 Possesses the skills of an oral report and presentation of the results of project and scientific activities, fluency in the material
	GPC -6.3 Knows the methodological foundations of scientific research, the requirements of copyright and scientific ethics

8.3. The list of specialized professional competencies (SPC) that a graduate who has fully mastered the program should have:

Competence code	Code and name of the competence achievement indicator
SPC-1 Ability to formulate problems, tasks and methods of scientific research,	SPC-1.1 Knows the basics of research planning methodology

generalize the results obtained, formulate conclusions and practical recommendations based on research results	SPC-1.2 Able to generalize the results obtained, formulate conclusions and practical recommendations based on research results
SPC-2 Ability to creatively use knowledge of fundamental and applied sections of special disciplines in production and technological activities	SPC-2.1 Ability to creatively use knowledge of fundamental and applied sections of special disciplines in production and technological activities
	SPC-2.2 Able to organize research in applied areas of environmental protection and interpret the results obtained
SPC-3 Possession of the basics of design, expert-analytical activities and research using modern approaches and methods, equipment and computer systems	SPC-3.1 Able to plan the introduction of modern approaches and methods, equipment and computing systems to solve problems in the professional field
	PC-3.2 Owns the basics of design and expert-analytical activities
SPC-4 Able to use modern methods of processing and interpreting environmental information in scientific and industrial research	SPC-4.1 Able to apply modern methods of processing and interpreting environmental information when conducting industrial research
	SPC-4.2 Able to interpret the results of studies in terms of compliance with safety and performance indicators
	SPC-4.3 Has the skills to conduct control and supervisory activities based on modern methods of processing environmental information
SPC-5 Able to develop standard environmental measures and assess the impact of planned facilities or other forms of economic activity on the environment	SPC-5.1 Able to develop and plan the implementation of standard environmental measures, taking into account international practice and the requirements of national legislation
	SPC-5.2. Has the skills to assess the impact of planned structures or other forms of economic activity on the environment
	SPC-5.3 Knows the requirements for the preparation and implementation of programs for the environmental modernization of enterprises, the introduction of BAT, the organization of environmental monitoring, accounting and reporting
SPC-6 Able to diagnose problems of nature conservation, develop practical recommendations for its protection and sustainable development	SPC-6.1 Capable of detecting inconsistencies in the state of environmental components with the requirements of national and international standards
	SPC-6.2 Able to develop programs for monitoring natural complexes under conditions of technogenic loads and programs for environmental rehabilitation of territories

9. MATRIX OF COMPETENCES formed in students during the development of the program "Economics of Natural Resources Management", in the direction of preparation 05.04.06 Ecology and nature management

Code	Corse name according to the study plan	General competence (GC)						
		GC-1. able to carry out a critical analysis of problem situations based on a systematic approach, to develop a strategy of actions	GC -2. able to manage the 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, including in a 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 determine and implement the priorities of his own activities and ways to improve it based on self-assessment	GC -7. able to use digital technologies and methods of search, processing, analysis, storage and presentation of information (in the field of ecology and nature management) in the digital economy and modern corporate information culture
Блок 1/ Block 1	Базовая компонента/ Basic Component							
Б1.О.01.01	IT in ecology and natural resources management / Компьютерные технологии в управлении природопользованием	GC -1.1, 1.2, 1.3						GC -7.1; GC -7.2; GC -7.3
Б1.О.01.02	Philosophical problems of natural sciences / Философские проблемы естествознания		GC - 2.3			GC -5.1; GC -5.2; GC -5.3	GC -6.2; GC -6.3	
Б1.О.01.03	Foreign (Russian) language/ Иностранный (русский) язык				GC -4.1; GC -4.2; GC -4.3	GC -5.3	GC -6.1; GC -6.2; GC -6.3	
Б1.О.01.04	Modern problems of Ecology / Современные проблемы экологии				GC -4.1; GC -4.2; GC -4.3	GC -5.1; GC -5.2		
Б1.О.02	Вариативная компонента/ Variative component							

Б1.О.02.01	Estimations of natural resources / Оценки природных ресурсов							
Б1.О.02.02	Management of environmental- economic risks / Управление эколого-экономическими рисками		GC -2.1, 2.2, 2.3					
Б1.О.02.03	Management of natural resources / Менеджмент природных ресурсов	GC -1.1, 1.2, 1.3	GC -2.1, 2.2, 2.3					
Б1.О.02.04	Methodology of scientific creation / Методология научного творчества							
Б1.О.02.05	Modern technologies for nature protection / Современные технологии защиты окружающей среды							
Б1.О.02.06	Industrial nature management and economics / Промышленное природопользование и экономика		GC -2.1, 2.2, 2.3					
Б1.О.02.07	Environmental standards and nature management / Экологические стандарты и природопользование							
Б1.О.02.08	Modern remediation technologies / Современные технологии ремедиации							
Б1.О.02.09	Economic aspects of natural resources management / Экономические аспекты природопользования							
Б1.О.02.10	Management of energy resources / Менеджмент ресурсов энергетики							
Б1.О.02.11	Management of water resources / Управление водными							

	ресурсами							
Б1.О.02.12	Environmental-economic aspects of environmental projects / Эколого-экономические аспекты экологических проектов							
Б1.О.02.13	Environmental norms for sustainability / Экологические нормы для устойчивого развития							GC -7.1; GC -7.2; GC -7.3
	Modern remediation technologies / Современные технологии ремедиации		GC -2.1, 2.2, 2.3					
	Management of energy resources / Менеджмент ресурсов энергетики		GC -2.1, 2.2, 2.3				GC -6.1; GC -6.2; GC -6.3	
	Management of water resources / Управление водными ресурсами							
	Environmental-economic aspects of environmental projects / Эколого-экономические аспекты экологических проектов							
	Environmental norms for sustainability / Экологические нормы для устойчивого развития	GC -1.1, 1.2, 1.3						
Б1.В.ДВ.01.01	History and methodology of ecology and natural resources management / История и методология экологии и природопользования							
Б1.В.ДВ.01.02	International collaboration / Международное сотрудничество							

Б1.В.ДВ.02.01	Standards of environmental management and occupational safety / Стандарты экологического менеджмента и охраны труда							
Б1.В.ДВ.02.02	Occupational safety and HSE-audit / Охрана труда и HSE-аудит							
Б1.В.ДВ.03.01	Environmental statistics / Экологическая статистика	GC -1.1, 1.2, 1.3						
Б1.В.ДВ.03.02	Environmental accounting and reporting / Экологический учет и отчетность				GC -4.1; GC -4.2; GC -4.3			
Б1.В.ДВ.04.01	Engineering ecology / Инженерная экология							
Б1.В.ДВ.04.02	Monitoring of environmental impacts / Мониторинг экологических воздействий							
Б1.В.ДВ.05.01	Wastes: Landfills, Processing and Recycling / Отходы: хранение, захоронение, рециклинг							
Б1.В.ДВ.05.02	Surface water quality: modeling and management / Качество поверхностных вод: моделирование и менеджмент							
Б1.В.ДВ.06.01	Industrial safety / Промышленная безопасность							
Б1.В.ДВ.06.02	Simulation and prevention of accidents / Моделирование и предупреждение аварий							
Блок 2. / Block 2.	Практика/ Practice							
Б2.О.01	Базовая компонента/ Basic component							
Б2.О.01.01(У)	Учебная практика / Educational practice	GC -1.1, 1.2,	GC -2.1, 2.2, 2.3	GC -3.1; GC -3.2; GC -3.3	GC -4.1; GC -4.2; GC -4.3	GC -5.1; GC -5.2; GC -5.3	GC -6.1; GC -	GC -7.1; GC -7.2; GC -

		1.3					6.2; GC -6.3	7.3
Б2.О.02	Вариативная компонента/ Variative component							
Б2.О.02.01(П)	Производственная практика / Production practice	GC -1.1, 1.2, 1.3	GC -2.1, 2.2, 2.3	GC -3.1; GC -3.2; GC -3.3	GC -4.1; GC -4.2; GC -4.3	GC -5.1; GC - 5.2; GC -5.3	GC -6.1; GC - 6.2; GC -6.3	GC -7.1; GC -7.2; GC - 7.3
Б2.В.01(Н)	Научно-исследовательская работа (учебная) / Research work (educational)	GC -1.1, 1.2, 1.3		GC -3.1; GC -3.2; GC -3.3	GC -4.1; GC -4.2; GC -4.3	GC -5.1; GC - 5.2; GC -5.3	GC -6.1; GC - 6.2; GC -6.3	GC -7.1; GC -7.2; GC - 7.3
Б2.В.02(Н)	Научно-исследовательская работа / Research work	GC -1.1, 1.2, 1.3	GC -2.1, 2.2, 2.3	GC -3.1; GC -3.2; GC -3.3	GC -4.1; GC -4.2; GC -4.3	GC -5.1; GC - 5.2; GC -5.3	GC -6.1; GC - 6.2; GC -6.3	GC -7.1; GC -7.2; GC - 7.3
Б2.В.03(Н)	НИР / Research work	GC -1.1, 1.2, 1.3	GC -2.1, 2.2, 2.3	GC -3.1; GC -3.2; GC -3.3	GC -4.1; GC -4.2; GC -4.3	GC -5.1; GC - 5.2; GC -5.3	GC -6.1; GC - 6.2; GC -6.3	GC -7.1; GC -7.2; GC - 7.3
Б2.В.04(Пд)	Преддипломная практика / Pre- graduate practice	GC -1.1, 1.2, 1.3	GC -2.1, 2.2, 2.3	GC -3.1; GC -3.2; GC -3.3	GC -4.1; GC -4.2; GC -4.3	GC -5.1; GC - 5.2; GC -5.3	GC -6.1; GC - 6.2; GC -6.3	GC -7.1; GC -7.2; GC - 7.3
Б3.01	Защита ВКР / Protection of the final qualifying work	GC -1.1, 1.2, 1.3	GC -2.1, 2.2, 2.3	GC -3.1; GC -3.2; GC -3.3	GC -4.1; GC -4.2; GC -4.3	GC -5.1; GC - 5.2; GC -5.3	GC -6.1; GC - 6.2; GC -6.3	GC -7.1; GC -7.2; GC - 7.3
Б3.02	Государственный экзамен / State exam	GC -1.1, 1.2, 1.3	GC -2.1, 2.2, 2.3	GC -3.1; GC -3.2; GC -3.3	GC -4.1; GC -4.2; GC -4.3	GC -5.1; GC - 5.2; GC -5.3	GC -6.1; GC - 6.2; GC -6.3	GC -7.1; GC -7.2; GC - 7.3

General professional competences (GPC)

Code	Course name according to the study plan	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, geoeology 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 and norms of professional ethics in the field of ecology and nature management.	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, represent, protect and disseminate the results of their professional activities, including research
Блок 1/ Block 1	Базовая компонента/ Basic Component						
Б1.О.01.0 1	IT in ecology and natural resources management / Компьютерные технологии в управлении природопользованием					GPC -5.1; GPC -5.2, GPC -5.3	
Б1.О.01.0 2	Philosophical problems of natural sciences / Философские проблемы естествознания						
Б1.О.01.0 3	Foreign (Russian) language/ Иностранный (русский) язык						GPC -6.1; GPC -6.2, GPC -6.3
Б1.О.01.0 4	Modern problems of Ecology / Современные проблемы экологии						
Б1.О.02	Вариативная компонента/ Variative component						
Б1.О.02.0 1	Estimations of natural resources / Оценки природных ресурсов		GPC -2.1; GPC -2.2, GPC -2.3	GPC -3.1; GPC -3.2, GPC -3.3	GPC -4.1; GPC -4.2, GPC -4.3		
Б1.О.02.0 2	Management of environmental-economic risks / Управление				GPC -4.1; GPC -4.2,		

	эколого-экономическими рисками				GPC -4.3		
Б1.О.02.0 3	Management of natural resources / Менеджмент природных ресурсов				GPC -4.1; GPC -4.2, GPC -4.3		
Б1.О.02.0 4	Methodology of scientific creation / Методология научного творчества			GPC -3.1; GPC -3.2, GPC -3.3			
Б1.О.02.0 5	Modern technologies for nature protection / Современные технологии защиты окружающей среды		GPC -2.1; GPC -2.2, GPC -2.3	GPC -3.1; GPC -3.2, GPC -3.3			
Б1.О.02.0 6	Industrial nature management and economics / Промышленное природопользование и экономика						
Б1.О.02.0 7	Environmental standards and nature management / Экологические стандарты и природопользование		GPC -2.1; GPC -2.2, GPC -2.3				
Б1.О.02.0 8	Modern remediation technologies / Современные технологии ремедиации		GPC -2.1; GPC -2.2, GPC -2.3	GPC -3.1; GPC -3.2, GPC -3.3			
Б1.О.02.0 9	Economic aspects of natural resources management / Экономические аспекты природопользования		GPC -2.1; GPC -2.2, GPC -2.3	GPC -3.1; GPC -3.2, GPC -3.3			
Б1.О.02.1 0	Management of energy resources / Менеджмент ресурсов энергетики			GPC -3.1; GPC -3.2, GPC -3.3			
Б1.О.02.1 1	Management of water resources / Управление водными ресурсами		GPC -2.1; GPC -2.2, GPC -2.3	GPC -3.1; GPC -3.2, GPC -3.3			
Б1.О.02.1 2	Environmental-economic aspects of environmental projects / Эколого- экономические аспекты экологических проектов		GPC -2.1; GPC -2.2, GPC -2.3	GPC -3.1; GPC -3.2, GPC -3.3			
Б1.О.02.1 3	Environmental norms for sustainability / Экологические нормы для устойчивого развития		GPC -2.1; GPC -2.2, GPC -2.3	GPC -3.1; GPC -3.2, GPC -3.3			
Б1.В.ДВ.	History and methology of ecology		GPC -2.1; GPC -2.2,				

01.01	and natural resources management / История и методология экологии и природопользования		GPC -2.3				
Б1.В.ДВ. 01.02	International collaboration / Международное сотрудничество		GPC -2.1; GPC -2.2, GPC -2.3				
Б1.В.ДВ. 02.01	Standards of environmental management and occupational safety / Стандарты экологического менеджмента и охраны труда			GPC -3.1; GPC -3.2, GPC -3.3			
Б1.В.ДВ. 02.02	Occupational safety and HSE-audit / Охрана труда и HSE-аудит			GPC -3.1; GPC -3.2, GPC -3.3			
Б1.В.ДВ. 03.01	Environmental statistics / Экологическая статистика						
Б1.В.ДВ. 03.02	Environmental accounting and reporting / Экологический учет и отчетность						
Б1.В.ДВ. 04.01	Engineering ecology / Инженерная экология		GPC -2.1; GPC -2.2, GPC -2.3				
Б1.В.ДВ. 04.02	Monitoring of environmental impacts / Мониторинг экологических воздействий		GPC -2.1; GPC -2.2, GPC -2.3				
Б1.В.ДВ. 05.01	Wastes: Landfills, Processing and Recycling / Отходы: хранение, захоронение, рециклинг			GPC -3.1; GPC -3.2, GPC -3.3			
Б1.В.ДВ. 05.02	Surface water quality: modeling and management / Качество поверхностных вод: моделирование и менеджмент			GPC -3.1; GPC -3.2, GPC -3.3			
Б1.В.ДВ. 06.01	Industrial safety / Промышленная безопасность		GPC -2.1; GPC -2.2, GPC -2.3				
Б1.В.ДВ. 06.02	Simulation and prevention of accidents / Моделирование и предупреждение аварий		GPC -2.1; GPC -2.2, GPC -2.3				
Блок 2. / Block 2.	Практика/ Practice						
Б2.О.01	Базовая компонента/						

	Basic component						
Б2.О.01.01(У)	Учебная практика / Educational practice	GPC -1.1; GPC -1.2, GPC -1.3	ОПК-2.1 GPC -2.1; GPC -2.2, GPC -2.3	GPC -3.1; GPC -3.2, GPC -3.3	GPC -4.1; GPC -4.2, GPC -4.3	GPC -5.1; GPC -5.2, GPC -5.3	GPC -6.1; GPC -6.2, GPC -6.3
Б2.О.02	Вариативная компонента/ Variative component						
Б2.О.02.01(П)	Производственная практика / Production practice	GPC -1.1; GPC -1.2, GPC -1.3	GPC -2.1; GPC -2.2, GPC -2.3	GPC -3.1; GPC -3.2, GPC -3.3	GPC -4.1; GPC -4.2, GPC -4.3	GPC -5.1; GPC -5.2, GPC -5.3	GPC -6.1; GPC -6.2, GPC -6.3
Б2.В.01(Н)	Научно-исследовательская работа (учебная) / Research work (educational)	GPC -1.1; GPC -1.2, GPC -1.3	GPC -2.1; GPC -2.2, GPC -2.3	GPC -3.1; GPC -3.2, GPC -3.3	GPC -4.1; GPC -4.2, GPC -4.3	GPC -5.1; GPC -5.2, GPC -5.3	GPC -6.1; GPC -6.2, GPC -6.3
Б2.В.02(Н)	Научно-исследовательская работа / Research work	GPC -1.1; GPC -1.2, GPC -1.3	GPC -2.1; GPC -2.2, GPC -2.3	GPC -3.1; GPC -3.2, GPC -3.3	GPC -4.1; GPC -4.2, GPC -4.3	GPC -5.1; GPC -5.2, GPC -5.3	GPC -6.1; GPC -6.2, GPC -6.3
Б2.В.03(Н)	НИР / Research work	GPC -1.1; GPC -1.2, GPC -1.3	GPC -2.1; GPC -2.2, GPC -2.3	GPC -3.1; GPC -3.2, GPC -3.3	GPC -4.1; GPC -4.2, GPC -4.3	GPC -5.1; GPC -5.2, GPC -5.3	GPC -6.1; GPC -6.2, GPC -6.3
Б2.В.04(Пд)	Преддипломная практика / Pre-graduate practice	GPC -1.1; GPC -1.2, GPC -1.3	GPC -2.1; GPC -2.2, GPC -2.3	GPC -3.1; GPC -3.2, GPC -3.3	GPC -4.1; GPC -4.2, GPC -4.3	GPC -5.1; GPC -5.2, GPC -5.3	GPC -6.1; GPC -6.2, GPC -6.3
Б3.01	Защита ВКР / Protection of the final qualifying work	GPC -1.1; GPC -1.2, GPC -1.3	GPC -2.1; GPC -2.2, GPC -2.3	GPC -3.1; GPC -3.2, GPC -3.3	GPC -4.1; GPC -4.2, GPC -4.3	GPC -5.1; GPC -5.2, GPC -5.3	GPC -6.1; GPC -6.2, GPC -6.3
Б3.02	Государственный экзамен / State exam	GPC -1.1; GPC -1.2, GPC -1.3	GPC -2.1; GPC -2.2, GPC -2.3	GPC -3.1; GPC -3.2, GPC -3.3	GPC -4.1; GPC -4.2, GPC -4.3	GPC -5.1; GPC -5.2, GPC -5.3	GPC -6.1; GPC -6.2, GPC -6.3

Code	Course name according to the study plan	Specialized professional competencies (SPC)					
		SPC-1 Ability to formulate problems, tasks and methods of scientific research, generalize the results obtained, formulate conclusions and practical recommendations based on research results	SPC-2 Ability to creatively use knowledge of fundamental and applied sections of special disciplines in production and technological activities	SPC-3 Possession of the basics of design, expert-analytical activities and research using modern approaches and methods, equipment and computer systems	SPC-4 Able to use modern methods of processing and interpreting environmental information in scientific and industrial research	SPC-5 Able to develop standard environmental measures and assess the impact of planned facilities or other forms of economic activity on the environment	SPC-6 Able to diagnose problems of nature conservation, develop practical recommendations for its protection and sustainable development
Блок 1/ Block 1	Базовая компонента/ Basic component	SPC -1.1, SPC -1.2, SPC -1.3	SPC -2.1	SPC -3.1, SPC -3.2	SPC -4.1, SPC -4.2	SPC -5.1, SPC -5.2	SPC -6.1, SPC -6.2
Б1.О.01.01	IT in ecology and natural resources management / Компьютерные технологии в управлении природопользованием						
Б1.О.01.02	Philosophical problems of natural sciences / Философские проблемы естествознания						
Б1.О.01.03	Foreign (Russian) language/ Иностранный (русский) язык						
Б1.О.01.04	Modern problems of Ecology / Современные проблемы экологии						
Б1.О.02	Вариативная компонента/ Variative component						
Б1.О.02.01	Estimations of natural resources / Оценки природных ресурсов			SPC -3.1, SPC -3.2			
Б1.О.02	Management of environmental-						SPC -6.1, SPC -6.2

.02	economic risks / Управление эколого-экономическими рисками						
Б1.О.02 .03	Management of natural resources / Менеджмент природных ресурсов		SPC -2.1				
Б1.О.02 .04	Methodology of scientific creation / Методология научного творчества		SPC -2.1				
Б1.О.02 .05	Modern technologies for nature protection / Современные технологии защиты окружающей среды		SPC -2.1	SPC -3.1, SPC -3.2			SPC -6.1, SPC -6.2
Б1.О.02 .06	Industrial nature management and economics / Промышленное природопользование и экономика				SPC -4.1, SPC -4.2		SPC -6.1, SPC -6.2
Б1.О.02 .07	Environmental standards and nature management / Экологические стандарты и природопользование				SPC -4.1, SPC -4.2	SPC -5.1, SPC -5.2	SPC -6.1, SPC -6.2
Б1.О.02 .08	Modern remediation technologies / Современные технологии ремедиации			SPC -3.1, SPC -3.2		SPC -5.1, SPC -5.2	SPC -6.1, SPC -6.2
Б1.О.02 .09	Economic aspects of natural resources management / Экономические аспекты природопользования			SPC -3.1, SPC -3.2			SPC -6.1, SPC -6.2
Б1.О.02 .10	Management of energy resources / Менеджмент ресурсов энергетики			SPC -3.1, SPC -3.2			SPC -6.1, SPC -6.2
Б1.О.02 .11	Management of water resources / Управление водными ресурсами			SPC -3.1, SPC -3.2		SPC -5.1, SPC -5.2	

Б1.О.02 .12	Environmental-economic aspects of environmental projects / Эколого-экономические аспекты экологических проектов					SPC -5.1, SPC -5.2	
Б1.О.02 .13	Environmental norms for sustainability / Экологические нормы для устойчивого развития			SPC -3.1, SPC -3.2			SPC -6.1, SPC -6.2
Б1.В.Д В.01.01	History and methology of ecology and natural resources management / История и методология экологии и природопользования						
Б1.В.Д В.01.02	International collaboration / Международное сотрудничество						
Б1.В.Д В.02.01	Standards of environmental management and occupational safety / Стандарты экологического менеджмента и охраны труда				SPC -4.1, SPC -4.2		SPC -6.1, SPC -6.2
Б1.В.Д В.02.02	Occupational safety and HSE-audit / Охрана труда и HSE-аудит				SPC -4.1, SPC -4.2		SPC -6.1, SPC -6.2
Б1.В.Д В.03.01	Environmental statistics / Экологическая статистика				SPC -4.1, SPC -4.2	SPC -5.1, SPC -5.2	SPC -6.1, SPC -6.2
Б1.В.Д В.03.02	Environmental accounting and reporting / Экологический учет и отчетность				SPC -4.1, SPC -4.2	SPC -5.1, SPC -5.2	SPC -6.1, SPC -6.2
Б1.В.Д В.04.01	Engineering ecology / Инженерная экология		SPC -2.1	SPC -3.1, SPC -3.2			
Б1.В.Д В.04.02	Monitoring of environmental impacts / Мониторинг экологических воздействий		SPC -2.1	SPC -3.1, SPC -3.2			
Б1.В.Д	Wastes: Landfills, Processing				SPC -4.1, SPC -	SPC -5.1, SPC -5.2	SPC -6.1, SPC -6.2

В.05.01	and Recycling / Отходы: хранение, захоронение, рециклинг				4.2		
Б1.В.Д В.05.02	Surface water quality: modeling and management / Качество поверхностных вод: моделирование и менеджмент				SPC -4.1, SPC -4.2	SPC -5.1, SPC -5.2	SPC -6.1, SPC -6.2
Б1.В.Д В.06.01	Industrial safety / Промышленная безопасность						SPC -6.1, SPC -6.2
Б1.В.Д В.06.02	Simulation and prevention of accidents / Моделирование и предупреждение аварий						SPC -6.1, SPC -6.2
	Блок 2.Практика/ Block 2. Practicum						
Б2.О.01	Базовая компонента						
Б2.О.01 .01(У)	Учебная практика / Educational practice	SPC -1.1, SPC -1.2, SPC -1.3	SPC -2.1	SPC -3.1, SPC -3.2	SPC -4.1, SPC -4.2	SPC -5.1, SPC -5.2	SPC -6.1, SPC -6.2
Б2.О.02	Вариативная компонента/ Variative component						
Б2.О.02 .01(П)	Производственная практика / Production practice	SPC -1.1, SPC -1.2, SPC -1.3	SPC -2.1	SPC -3.1, SPC -3.2	SPC -4.1, SPC -4.2	SPC -5.1, SPC -5.2	SPC -6.1, SPC -6.2
Б2.В.01 (Н)	Научно-исследовательская работа (учебная) / Research work (educational)	SPC -1.1, SPC -1.2, SPC -1.3	SPC -2.1	SPC -3.1, SPC -3.2	SPC -4.1, SPC -4.2	SPC -5.1, SPC -5.2	SPC -6.1, SPC -6.2
Б2.В.02 (Н)	Научно-исследовательская работа / Research work	SPC -1.1, SPC -1.2, SPC -1.3	SPC -2.1	SPC -3.1, SPC -3.2	SPC -4.1, SPC -4.2	SPC -5.1, SPC -5.2	SPC -6.1, SPC -6.2
Б2.В.03 (Н)	НИР / Research work	SPC -1.1, SPC -1.2, SPC -1.3	SPC -2.1	SPC -3.1, SPC -3.2	SPC -4.1, SPC -4.2	SPC -5.1, SPC -5.2	SPC -6.1, SPC -6.2
Б2.В.04 (Пд)	Преддипломная практика / Pre-graduate practice	SPC -1.1, SPC -1.2, SPC -1.3	SPC -2.1	SPC -3.1, SPC -3.2	SPC -4.1, SPC -4.2	SPC -5.1, SPC -5.2	SPC -6.1, SPC -6.2
Б3.01	Защита ВКР / Protection of the final qualifying work	SPC -1.1, SPC -1.2, SPC -1.3	SPC -2.1	SPC -3.1, SPC -3.2	SPC -4.1, SPC -4.2	SPC -5.1, SPC -5.2	SPC -6.1, SPC -6.2
Б3.02	Государственный экзамен / State exam	SPC -1.1, SPC -1.2, SPC -1.3	SPC -2.1	SPC -3.1, SPC -3.2	SPC -4.1, SPC -4.2	SPC -5.1, SPC -5.2	SPC -6.1, SPC -6.2

