

MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION

Federal State Budgetary Educational Institution higher education

«Perm State University»

Department of Biogeocenology and Nature Protection

PROGRAM
STATE FINAL ATTESTATION

Direction of training
05.03.06 Ecology and nature management

Preparation profile
Ecological Engineering and New Energetics

Qualification (degree) of the graduate
Bachelor

Form of study
Full-time

Perm, 2024

The program of the state final attestation was drawn up on the basis of the independently established educational standard of higher education of PSU (hereinafter referred to as the EMS) in the direction of preparation 03.05.06 Ecology and nature management

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1. GENERAL PROVISIONS

State final attestation (SFA) is a form of assessing the degree and level of mastering by students of the educational program of higher education, which is carried out on the basis of the principles of objectivity and independence of assessing the quality of training of students.

In accordance with the Federal Law of December 29, 2012 No. 273-FZ (with amendments that came into force on September 1, 2013) "On Education in the Russian Federation", the final attestation completing the development of educational programs (hereinafter - EP) is mandatory and carried out in the manner and in the form established by the educational organization. Regulations on the procedure for conducting state final attestation for educational programs of higher education - bachelor's programs, specialist programs and master's programs at PSU (hereinafter, the Regulation on the procedure for SFA PSU).

A student who does not have academic debt and who has fully completed the curriculum or individual curriculum is admitted to the state final certification.

Students who have successfully passed the SFA are issued a document on education and qualifications of the sample established by the Ministry of Education and Science of the Russian Federation.

Students who have not passed the SFA or received unsatisfactory results at the SFA have the right to pass the SFA within the timeframes determined by the procedure for conducting the SFA according to the relevant EP.

Representatives of employers or their associations are involved in conducting the SFA for EP.

Documents on the basis of which the SFA Program was developed

1. Federal Law of December 29, 2012 No. 273-FZ (with amendments that came into force on September 1, 2013) "On Education in the Russian Federation".

2. Independently established educational standard of higher education of PSNIU (hereinafter referred to as the EMS) in the direction of preparation 03.05.06 Ecology and nature management (approved by the decision of the PSU Academic Council on 04.28.2021, Protocol №. 8).

3. The procedure for organizing and carrying out educational activities for educational programs of higher education - bachelor's programs, specialty programs, master's programs, approved by order of the Ministry of Education and Science of April 5, 2017 No. 301.

4. The procedure for conducting state final certification for educational higher education - bachelor's programs, specialist programs and master's program, approved by order of the Ministry of Education and Science of the Russian Federation dated June 29, 2015 No. 636.

5. Regulations on the procedure for conducting state final certification for educational programs of higher education - bachelor's programs, specialist programs and master's programs at PSU dated 06/27/2018.

6. Educational program of higher education in the direction of preparation 03/05/06 Ecology and nature management (bachelor's level).

7. Curriculum in the direction of preparation 03/05/06 Ecology and nature management (bachelor's level).

8. Structure of the State Final Attestation Program in the direction of training 05.03.06 Ecology and nature management (bachelor's level) full-time and part-time education of the Siberian State University of Geosystems and Technologies, Department of Ecology and Nature Management. Novosibirsk, 2018.

2. OBJECTIVES OF THE STATE SUMMARY CERTIFICATION

SFA is carried out by state examination commissions (hereinafter referred to as the SEC) in order to determine the compliance of the results of mastering the EP with the requirements of

the independent established educational standard (hereinafter referred to as the EMS) in the direction of training 03/05/06

The tasks of the SFA are:

- assessment of the degree and level of mastering by students of the main educational program of higher education in the direction of training 05.03.06 Ecology and nature management, profile " Ecological Engineering and New Energetics";
- making a decision on the assignment of a qualification (degree) based on the results of the state final certification and the issuance of a certificate of education and qualification;
- checking the readiness of the graduate for professional activity;
- development of proposals aimed at further improving the quality of training of graduates, improving the organization, content, methods and material and technical support of the educational process.

SFA is conducted at the final stage of training after passing theoretical training, educational and industrial practices, provided for by the curriculum in the direction of training 05.03.06 Ecology and nature management, profile " Ecological Engineering and New Energetics

SFA in the direction of training 05.03.06 Ecology and nature management is carried out in the form of defense of the final qualification work (FQW).

The labor intensity of the SIA is 9 credit units (324 academic hours) and is carried out according to the curriculum for full-time education - on the 4th year.

3. LIST OF PLANNED RESULTS OF THE STATE FINAL CERTIFICATION, CORRELATED TO THE PLANNED RESULTS OF THE LEARNING OF THE EDUCATIONAL PROGRAM

3.1. The list of competencies that students must master as a result of mastering the educational program

As a result of mastering the EP, the graduate must have the following competencies:

Table 3.1

List of competencies

Competency code	Content of the formulated competence	Forms of certification
УК-1	Способен осуществлять поиск, анализ и синтез информации, применять системный подход для разрешения проблемных ситуаций	Presentation of the Qualification Paper
УК-2	Способен определять круг задач в рамках поставленной цели и выбирать способы их решения, исходя из имеющихся ресурсов и ограничений	Presentation of the Qualification Paper
УК-3	Способен участвовать в реализации группового проекта	Presentation of the Qualification Paper
УК-4	Способен осуществлять деловую коммуникацию на русском и иностранном языках в устной и письменной формах	Presentation of the Qualification Paper
УК-5	Способен воспринимать межкультурное разнообразие общества в социально-историческом и философском контекстах	Presentation of the Qualification Paper
УК-6	Способен управлять своими ресурсами, выстраивать и реализовывать траекторию саморазвития	Presentation of the Qualification Paper
УК-7	Способен поддерживать должный уровень физической подготовленности для обеспечения полноценной социальной и профессиональной деятельности	Presentation of the Qualification Paper
УК-8	Способен создавать и поддерживать в	Presentation of the Qualification Paper

	повседневной жизни и в профессиональной деятельности безопасные условия жизнедеятельности для сохранения природной среды, обеспечения устойчивого развития общества, в том числе при угрозе и возникновении чрезвычайных ситуаций и военных конфликтов	
УК-9	Знает правовые и этические нормы, способен оценивать последствия нарушения этих норм	Presentation of the Qualification Paper
УК – 10	Способен использовать базовые дефектологические знания в социальной и профессиональной сферах	Presentation of the Qualification Paper
УК-11	Способен принимать обоснованные экономические решения в различных областях жизнедеятельности	Presentation of the Qualification Paper
УК-12	Способен формировать нетерпимое отношение к коррупционному поведению	Presentation of the Qualification Paper
УК-13	Способен формировать нетерпимое отношение к проявлениям экстремизма, терроризма и противодействовать им в профессиональной деятельности	Presentation of the Qualification Paper
ОПК-1	Владеет базовыми знаниями о современной научной картине мира на основе положений, законов и методов математических и естественных наук	Presentation of the Qualification Paper
ОПК-2	Способен понимать принципы работы современных информационно-коммуникационных технологий и использовать их для решения профессиональных задач с учетом требований информационной безопасности	Presentation of the Qualification Paper
ОПК-3	Способен использовать теоретические основы экологии, геоэкологии, природопользования, охраны природы и наук об окружающей среде в профессиональной деятельности	Presentation of the Qualification Paper
ОПК-4	Способен применять базовые методы экологических исследований для решения задач профессиональной деятельности	Presentation of the Qualification Paper
ОПК-5	Способен решать задачи профессиональной деятельности с использованием современных геоинформационных технологий	Presentation of the Qualification Paper
ОПК-6	Способен осуществлять профессиональную деятельность в соответствии с нормативными правовыми актами в сфере экологии, природопользования и охраны природы, нормами профессиональной этики	Presentation of the Qualification Paper
ОПК-7	Способен проектировать, представлять, защищать и распространять результаты своей профессиональной и научно-исследовательской деятельности	Presentation of the Qualification Paper
ПК-1	Способен осуществлять выполнение экспериментов и оформление результатов исследований и разработок	Presentation of the Qualification Paper
ПК-5	Способен разрабатывать проекты и осуществлять контроль загрязнения атмосферного воздуха, водных объектов и образования отходов на предприятии	Presentation of the Qualification Paper
ПК-6	Способен создавать, внедрять и осуществлять контроль системы производственного экологического контроля на предприятии	Presentation of the Qualification Paper
ПК-7	Способен оценивать состояние окружающей среды для различных целей (экологический мониторинг, оценка состояния отдельных	Presentation of the Qualification Paper

	компонентов природной среды, проведение инженерно-экологических изысканий, ОВОС) и на основе полученных данных разрабатывать рекомендации по использованию природных ресурсов, сохранению и восстановлению окружающей и природной среды	
ПК-8	Способен разрабатывать экологическую документацию организации в соответствии с установленными требованиями в области охраны окружающей среды, в том числе нормативы предельно допустимого воздействия	Presentation of the Qualification Paper
ПК-9	Способен проектировать и создавать особо охраняемые природные территории, экологическое обустройство, экологические тропы, экологические сети и каркасы	Presentation of the Qualification Paper
ПК-10	Способен разрабатывать и внедрять мероприятия, направленные на выполнение требований в области охраны окружающей среды, внедрению системы экологического менеджмента, разработке и функционировании системы экологического мониторинга, предупреждения возникновения чрезвычайных ситуаций природного и техногенного характера	Presentation of the Qualification Paper

3.2. Indicators, criteria and scales for assessing competencies

Each of the levels of competence formation corresponds to the assessment "excellent" (5), "good" (4), "satisfactory" (3) and "unsatisfactory" (2) in accordance with the established rating scale.

Table 3.2

Scale for assessing the formation of competencies

Grading scale	Evaluation criteria
«Excellent»	student must: demonstrate a deep and solid assimilation of knowledge of the material; exhaustively, consistently, competently and logically harmoniously present theoretical material; correctly formulate definitions; demonstrate the ability to work independently with normative and legal literature; be able to draw conclusions from the material presented
«Good»	student must: demonstrate a sufficiently complete knowledge of the material; demonstrate knowledge of basic theoretical concepts; sufficiently consistently, competently and logically harmoniously present the material; demonstrate the ability to navigate the regulatory literature; be able to draw sufficiently substantiated conclusions based on the material presented
«Satisfactory»	the student must: demonstrate general knowledge of the material being studied; know the basic educational literature recommended by the discipline program; be able to build an answer in accordance with the structure of the question being presented; show general knowledge of the conceptual apparatus of the discipline
«Unsatisfactory»	student must: not demonstrate general knowledge of the studied material; not know the main educational literature recommended by the discipline program; not be able to build an answer in accordance with the structure of the question being presented; do not show general knowledge of the conceptual apparatus of the discipline

Table 3.3

Criteria for determining the formation of competencies

Criteria	Levels of competence formation			
	Inadequate	Threshold	Base	Tall
	The competence has been formed. Demonstrates lack of independence and practical	The competence has been formed. Demonstrates an insufficient level of	The competence has been formed. Demonstrates a sufficient level of	The competence has been formed. Demonstrates a high level of

	skill	independence of practical skills	independence of sustainable practical skills	independence, high adaptability of practical skills
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Table 3.4

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
УК-1 Способен осуществлять поиск, анализ и синтез информации, применять системный подход для разрешения проблемных ситуаций		
TALL	<p>Know: methods of critical analysis and assessment of modern scientific achievements in ecology and nature management</p> <p>Be able to: gain new knowledge based on analysis, synthesis and other methods; collect data on complex scientific problems related to the field of ecology and nature management; search for information and solutions based on experimental actions</p> <p>Own: researching problems in ecology and nature management using analysis, synthesis and other methods of intellectual activity; identifying scientific problems and using adequate methods to solve them; demonstrating value judgments in solving problematic professional situations</p>	5
BASE	<p>Know: some methods of critical analysis and assessment of modern scientific achievements in ecology and nature management</p> <p>Be able to: partially obtain new knowledge based on analysis, synthesis and other methods; partially collect data on complex scientific problems related to the field of ecology and nature management; partially search for information and solutions based on experimental actions</p> <p>Own: a superficial study of problems in ecology and nature management using analysis, synthesis and other methods of intellectual activity; superficial identification of scientific problems and the use of adequate methods to solve them; partial demonstration of value judgments in solving problematic professional situations</p>	4
THRESHOLD	<p>Know: methods of critical analysis and assessment of modern scientific achievements in ecology and environmental management, but not know the basic principles of critical analysis</p> <p>Be able to: gain new knowledge based on analysis, synthesis and other methods; but not be able to collect data on complex scientific problems related to the field of ecology and nature management; search for information and solutions based on experimental actions</p> <p>Own: researching problems in ecology and nature management using analysis, synthesis and other methods of intellectual activity; but not be proficient in identifying scientific problems and using adequate methods to solve them; demonstrating value judgments in solving problematic professional situations</p>	3
INADEQUATE	<p>Don't know: methods of critical analysis and assessment of modern scientific achievements in ecology and nature management</p> <p>Not be able to: gain new knowledge based on analysis, synthesis and other methods; collect data on complex scientific problems related to the field of ecology and nature management; search for information and solutions based on experimental actions</p> <p>Do not possess: research of problems in ecology and nature management using analysis, synthesis and other methods of intellectual activity; identifying scientific problems and using adequate methods to solve them; demonstrating value judgments in solving problematic professional situations</p>	2
УК-2 Способен определять круг задач в рамках поставленной цели и выбирать способы их решения, исходя из имеющихся ресурсов и ограничений		
TALL	<p>Know: the legal basis for presenting and describing the results of environmental protection activities; legal norms for assessing the results of solving problems; legal norms applicable to methods of solving problems in ecology and nature management, based on the current legal norms, available</p>	5

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	<p>resources and restrictions</p> <p>Be able to: substantiate the legal expediency of the results obtained; check and analyze environmental documentation; put forward innovative ideas and non-standard approaches to their implementation in ecology and nature management; analyze regulatory documents</p> <p>Own: legal norms in the field of ecology and nature management; legal norms for the development of technical specifications for the project, legal norms for the implementation of specialized professional work; legal norms for conducting a professional discussion of the results of activities</p>	
BASE	<p>Know: some legal basis for presenting and describing the results of conservation activities; some legal norms for evaluating the results of solving problems; some legal norms applied to the methods of solving problems of ecology and nature management, based on the current legal norms, available resources and restrictions</p> <p>Be able to: partially substantiate the legal expediency of the results obtained; partially check and analyze environmental documentation; partially put forward innovative ideas and non-standard approaches to their implementation in ecology and nature management; analyze regulatory documents</p> <p>Own: some legal norms in the field of ecology and nature management; some legal norms for the development of technical specifications for the project, legal norms for the implementation of specialized professional work; some legal norms for conducting a professional discussion of the results of activities</p>	4
THRESHOLD	<p>Know: the legal basis for presenting and describing the results of environmental protection activities; but do not know the legal rules for assessing the results of solving problems; legal norms applicable to methods of solving problems of ecology and nature management, based on the current legal norms, available resources and restrictions</p> <p>Be able to: substantiate the legal expediency of the results obtained; check and analyze environmental documentation; but not be able to put forward innovative ideas and non-standard approaches to their implementation in ecology and nature management; analyze regulatory documents</p> <p>Own: legal norms in the field of ecology and nature management; but not to possess the legal norms for the development of the technical task of the project, the legal norms for the implementation of specialized professional work; legal norms for conducting a professional discussion of the results of activities</p>	3
INADEQUATE	<p>Don't know: the legal basis for presenting and describing the results of environmental protection activities; legal norms for assessing the results of solving problems; legal norms applicable to methods of solving problems in ecology and nature management, based on the current legal norms, available resources and restrictions</p> <p>Not be able to: substantiate the legal expediency of the results obtained; check and analyze environmental documentation; put forward innovative ideas and non-standard approaches to their implementation in ecology and nature management; analyze regulatory documents</p> <p>Do not own: legal norms in the field of ecology and nature management; legal norms for the development of technical specifications for the project, legal norms for the implementation of specialized professional work; legal norms for conducting a professional discussion of the results of activities</p>	2
УК-3 Способен участвовать в реализации группового проекта		
TALL	<p>Know: the problems of selecting an effective team; basic conditions for effective teamwork; fundamentals of strategic human resource management, regulatory legal acts concerning the organization and implementation of professional activities in the field of ecology and nature management; models of organizational behavior, factors of formation of organizational relations; strategies and principles of teamwork, the main characteristics of</p>	5

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	<p>the organizational climate and the interaction of people in the organization; research methods in the field of management</p> <p>Be able to: determine the style of management and the effectiveness of team leadership; develop a team strategy; own the technology for the implementation of basic management functions, analyze interpret the results of scientific research in the field of human resource management; apply the principles and methods of organizing team activities; select methods and techniques for researching professional practical problems; be able to analyze and interpret the results of scientific research</p> <p>Own: the organization and management of team interaction in solving the set goals; creating a team to perform practical tasks in the field of ecology and nature management</p>	
BASE	<p>Know: some of the problems of selecting an effective team; some conditions for effective teamwork; some fundamentals of strategic human resource management, regulatory legal acts concerning the organization and implementation of professional activities in the field of ecology and nature management; models of organizational behavior, factors of formation of organizational relations; some strategies and principles of teamwork, the main characteristics of the organizational climate and the interaction of people in the organization; some methods of scientific research in the field of management</p> <p>Be able to: partially determine the management style and the effectiveness of team leadership; partially develop a team strategy; partially own the technology for the implementation of basic management functions, analyze interpret the results of scientific research in the field of human resource management; apply the principles and methods of organizing team activities; partially select methods and techniques for researching professional practical problems; partially be able to analyze and interpret the results of scientific research</p> <p>Own: fragmentarily the organization and management of team interaction in solving the set goals; fragmentarily creating a team to perform practical tasks in the field of ecology and nature management</p>	4
THRESHOLD	<p>Know: the problems of selecting an effective team; basic conditions for effective teamwork; but do not know: the basics of strategic human resources management, regulatory legal acts concerning the organization and implementation of professional activities in the field of ecology and nature management; models of organizational behavior, factors of formation of organizational relations; strategies and principles of teamwork, the main characteristics of the organizational climate and the interaction of people in the organization; research methods in the field of management</p> <p>Be able to: determine the style of management and the effectiveness of team leadership; develop a team strategy; but not be able to master the technology for the implementation of basic management functions, analyze interpret the results of scientific research in the field of human resource management; apply the principles and methods of organizing team activities; select methods and techniques for researching professional practical problems; be able to analyze and interpret the results of scientific research</p> <p>Own: the organization and management of team interaction in solving the set goals; but not possess the skills to create a team to perform practical tasks in the field of ecology and nature management</p>	3
INADEQUATE	<p>Don't know: problems of selecting an effective team; basic conditions for effective teamwork; fundamentals of strategic human resource management, regulatory legal acts concerning the organization and implementation of professional activities in the field of ecology and nature management; models of organizational behavior, factors of formation of organizational relations; strategies and principles of teamwork, the main characteristics of the organizational climate and the interaction of people in the organization; research methods in the field of management</p> <p>Not be able to: determine the style of management and the</p>	2

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	<p>effectiveness of team leadership; develop a team strategy; own the technology for the implementation of basic management functions, analyze interpret the results of scientific research in the field of human resource management; apply the principles and methods of organizing team activities; select methods and techniques for researching professional practical problems; be able to analyze and interpret the results of scientific research</p> <p>Do not own: the organization and management of team interaction in solving the set goals; creating a team to perform practical tasks in the field of ecology and nature management</p>	
УК-4 Способен осуществлять деловую коммуникацию на русском и иностранном языках в устной и письменной формах		
TALL	<p>Know: principles of communication in professional ethics; factors of improving communication in the organization, communication technologies in professional interaction; characteristics of communication flows; the importance of communication in professional interaction; research methods of the communicative potential of a person; modern means of information and communication technologies</p> <p>Be able to: create in Russian and foreign languages written texts of scientific and official-business styles of speech on professional issues; investigate the passage of information on management communications; define internal communications in the organization; make editorial and proofreading of texts of scientific and official-business styles of speech in Russian and foreign languages; own the principles of forming a communication system; analyze the system of communication links in the organization</p> <p>Own: implementation of methods of oral and written communication, including in a foreign language; presentation of plans and results of own and team activities using communication technologies</p>	5
BASE	<p>Know: some principles of communication in professional ethics; some factors for improving communication in the organization, communication technologies in professional interaction; some characteristics of communication flows; some of the importance of communication in professional interaction; some methods of researching the communicative potential of a person; modern means of information and communication technologies</p> <p>Be able to: partially create in Russian and foreign languages written texts of scientific and official-business styles of speech on professional issues; to fragmentarily investigate the passage of information on management communications; define internal communications in the organization; to partially make editorial and proofreading of texts of scientific and official-business styles of speech in Russian and foreign languages; partially own the principles of forming a communication system; analyze the system of communication links in the organization</p> <p>Own: implementation of methods of oral and written communication, including in a foreign language with minor errors; presentation of plans and results of own and team activities using communication technologies with minor errors</p>	4
THRESHOLD	<p>Know: principles of communication in professional ethics; but not to know: factors of improving communication in the organization, communication technologies in professional interaction; characteristics of communication flows; the importance of communication in professional interaction; research methods of the communicative potential of a person; modern means of information and communication technologies</p> <p>Be able to: create in Russian and foreign languages written texts of scientific and official-business styles of speech on professional issues; but not be able to investigate the passage of information through management communications; define internal communications in the organization; make editorial and proofreading of texts of scientific and official-business styles of speech in Russian and foreign languages; own the principles of forming a</p>	3

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	<p>communication system; analyze the system of communication links in the organization</p> <p>Own: implementation of methods of oral and written communication, including in a foreign language; but not have the skills to present plans and results of their own and team activities using communication technologies</p>	
INADEQUATE	<p>Don't know: principles of communication in professional ethics; factors of improving communication in the organization, communication technologies in professional interaction; characteristics of communication flows; the importance of communication in professional interaction; research methods of the communicative potential of a person; modern means of information and communication technologies</p> <p>Not be able to: create in Russian and foreign languages written texts of scientific and official-business styles of speech on professional issues; investigate the passage of information on management communications; define internal communications in the organization; make editorial and proofreading of texts of scientific and official-business styles of speech in Russian and foreign languages; own the principles of forming a communication system; analyze the system of communication links in the organization</p> <p>Do not own: implementation of methods of oral and written communication, including in a foreign language; presentation of plans and results of own and team activities using communication technologies</p>	2
УК-5 Способен воспринимать межкультурное разнообразие общества в социально-историческом и философском контекстах		
TALL	<p>Know: the psychological foundations of social interaction; aimed at solving professional problems in the field of ecology and nature management; basic principles of organizing business contacts; methods of preparation for negotiations, national, ethnocultural and confessional characteristics and folk traditions of the population; basic concepts of human interaction in an organization, features of dyadic interaction</p> <p>To be able to: competently, easily present environmental information in the process of intercultural interaction; respect ethical norms and human rights; analyze the features of social interaction, taking into account national, ethnocultural, confessional characteristics</p> <p>Own: the organization of productive interaction in a professional environment, taking into account national, ethnocultural, confessional characteristics; overcoming communicative, educational, ethnic, confessional and other barriers in the process of intercultural interaction; identifying the diversity of cultures in the process of intercultural interaction</p>	5
BASE	<p>Know: some of the psychological foundations of social interaction; aimed at solving professional problems in the field of ecology and nature management; some principles of organizing business contacts; some methods of preparation for negotiations, national, ethnocultural and confessional characteristics and folk traditions of the population; some concepts of human interaction in an organization, features of dyadic interaction</p> <p>To be able to: without blunders, it is easy to present environmental information in the process of intercultural interaction; respect ethical norms and human rights; to partially analyze the features of social interaction, taking into account national, ethnocultural, confessional characteristics</p> <p>Own: the organization of productive interaction in a professional environment, taking into account national, ethnocultural, confessional characteristics with minor errors; overcoming some communicative, educational, ethnic, confessional and other barriers in the process of intercultural interaction; identifying the diversity of cultures in the process of intercultural interaction</p>	4
THRESHOLD	<p>Know: the psychological foundations of social interaction; aimed at solving professional problems in the field of ecology and nature management; but do not know the basic principles of organizing business</p>	3

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	<p>contacts; methods of preparation for negotiations, national, ethnocultural and confessional characteristics and folk traditions of the population; basic concepts of human interaction in an organization, features of dyadic interaction</p> <p>To be able to: competently, easily present environmental information in the process of intercultural interaction; but fail to observe ethical norms and human rights; analyze the features of social interaction, taking into account national, ethnocultural, confessional characteristics</p> <p>Own: the organization of productive interaction in a professional environment, taking into account national, ethnocultural, confessional characteristics; but not possess the skills to overcome communicative, educational, ethnic, confessional and other barriers in the process of intercultural interaction; identifying the diversity of cultures in the process of intercultural interaction</p>	
INADEQUATE	<p>Don't know: the psychological foundations of social interaction; aimed at solving professional problems in the field of ecology and nature management; basic principles of organizing business contacts; methods of preparation for negotiations, national, ethnocultural and confessional characteristics and folk traditions of the population; basic concepts of human interaction in an organization, features of dyadic interaction</p> <p>Not be able to: competently, clearly present environmental information in the process of intercultural interaction; respect ethical norms and human rights; analyze the features of social interaction, taking into account national, ethnocultural, confessional characteristics</p> <p>Do not own: the organization of productive interaction in a professional environment, taking into account national, ethnocultural, confessional characteristics; overcoming communicative, educational, ethnic, confessional and other barriers in the process of intercultural interaction; identifying the diversity of cultures in the process of intercultural interaction</p>	2
УК-6 Способен управлять своими ресурсами, выстраивать и реализовывать траекторию саморазвития		
TALL	<p>Know: the content of self-organization and self-education processes, their features and implementation technologies, based on the goals of improving professional activities in the field of ecology and nature management</p> <p>Be able to: plan goals and set priorities in the implementation of activities; independently build the process of mastering information, selected and structured for performing professional activities in the field of ecology and nature management</p> <p>Own: technologies for organizing the process of self-education and self-organization; methods of goal-setting in the time perspective, methods of planning, organization, self-control and self-assessment of activities in the field of ecology and nature management</p>	5
BASE	<p>Know: the content of self-organization and self-education processes, their features and implementation technologies, based on the goals of improving professional activities in the field of ecology and environmental management (demonstrates knowledge of the content and features of self-organization and self-education processes, but gives an incomplete justification for the correspondence of the selected technologies for implementing processes to the goals of professional growth).</p> <p>Be able to: plan goals and set priorities in the implementation of activities; independently build the process of mastering information, selected and structured for performing professional activities in the field of ecology and nature management (it may be difficult to justify the chosen goals and priorities).</p> <p>Own: technologies for organizing the process of self-education and self-organization in the field of ecology and nature management</p>	4
THRESHOLD	<p>Know: the content of self-organization and self-education processes, their features (makes significant mistakes when disclosing the content and</p>	3

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	<p>characteristics of self-organization and self-education processes) in the field of ecology and nature management</p> <p>Be able to: plan goals and set priorities in the implementation of activities; build the process of mastering information, selected and structured for performing professional activities in the field of ecology and nature management (makes mistakes; experiences difficulties in planning and setting priorities).</p> <p>Own: technologies for organizing the process of self-education and self-organization in the field of ecology and nature management (owns certain methods of self-education and self-regulation, makes mistakes in their implementation).</p>	
INADEQUATE	<p>Don't know: the content of self-organization and self-education processes, their features and implementation technologies, based on the goals of improving professional activities in the field of ecology and nature management</p> <p>Not be able to: plan goals and set priorities in the implementation of activities; independently build the process of mastering information, selected and structured for performing professional activities in the field of ecology and nature management</p> <p>Do not own: technologies for organizing the process of self-education and self-organization; methods of goal-setting in the time perspective, methods of planning, organization, self-control and self-assessment of activities in the field of ecology and nature management</p>	2
УК-7 Способен поддерживать должный уровень физической подготовленности для обеспечения полноценной социальной и профессиональной деятельности		
TALL	<p>Know: patterns of functioning of a healthy organism; principles of distribution of physical activity; standards of physical readiness for the general physical group and taking into account the individual conditions of the physical development of the human body; ways to promote a healthy lifestyle</p> <p>Be able to: maintain the proper level of physical fitness; correctly distribute the loads; develop an individual physical training program that takes into account the individual characteristics of the development of the body</p> <p>Own: methods of maintaining the proper level of physical fitness; skills to ensure full-fledged social and professional activities; basic methods of promoting a healthy lifestyle</p>	5
BASE	<p>Know: some patterns of functioning of a healthy organism; some principles of the distribution of physical activity; some standards of physical readiness for the general physical group and taking into account the individual conditions of the physical development of the human body; some ways to promote healthy lifestyles</p> <p>Be able to: maintain an average level of physical fitness; correctly distribute loads without blunders; develop an individual program of physical training, taking into account the individual characteristics of the development of the body without gross flaws</p> <p>Own: some methods of maintaining the proper level of physical fitness; skills to ensure full-fledged social and professional activities; fragmentary methods of promoting a healthy lifestyle</p>	4
THRESHOLD	<p>Know: patterns of functioning of a healthy organism; principles of distribution of physical activity; but not to know the standards of physical readiness for the general physical group and taking into account the individual conditions of the physical development of the human body; ways to promote a healthy lifestyle</p> <p>Be able to: maintain a low level of physical fitness; correctly distribute the loads; but not be able to develop an individual physical training program that takes into account the individual characteristics of the development of the body</p> <p>Own: methods of maintaining the proper level of physical fitness; but</p>	3

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	not possess the skills to ensure full-fledged social and professional activities; basic methods of promoting a healthy lifestyle	
INADEQUATE	<p>Don't know: the regularities of the functioning of a healthy organism; principles of distribution of physical activity; standards of physical readiness for the general physical group and taking into account the individual conditions of the physical development of the human body; ways to promote a healthy lifestyle</p> <p>Not be able to: maintain the proper level of physical fitness; correctly distribute the loads; develop an individual physical training program that takes into account the individual characteristics of the development of the body</p> <p>Do not own: methods of maintaining the proper level of physical fitness; skills to ensure full-fledged social and professional activities; basic methods of promoting a healthy lifestyle</p>	2
УК-8 Способен создавать и поддерживать в повседневной жизни и в профессиональной деятельности безопасные условия жизнедеятельности для сохранения природной среды, обеспечения устойчивого развития общества, в том числе при угрозе и возникновении чрезвычайных ситуаций и военных конфликтов		
TALL	<p>Know: scientifically grounded methods of maintaining safe living conditions in everyday life and in professional activity to preserve the natural environment, ensure sustainable development of society, including in the event of the threat and occurrence of emergencies and military conflicts</p> <p>Be able to: create and maintain safe living conditions in everyday life and in professional activity to preserve the natural environment, ensure sustainable development of society, including in the event of the threat and occurrence of emergencies and military conflicts</p> <p>Possess: skills to prevent emergencies and military conflicts; first aid receptions; basic medical knowledge; ways to maintain civil defense and conditions to minimize the consequences of emergency situations</p>	5
BASE	<p>Know: some scientifically grounded ways of maintaining safe living conditions in everyday life and in professional activity to preserve the natural environment, ensure sustainable development of society, including in the event of the threat and occurrence of emergencies and military conflicts</p> <p>Be able to: create and maintain safe living conditions in everyday life and in professional activity to preserve the natural environment, ensure sustainable development of society, including in the event of the threat and occurrence of emergencies and military conflicts without gross deficiencies</p> <p>Possess: partially skills in prevention of emergencies and military conflicts; first aid receptions; basic medical knowledge; ways to maintain civil defense and conditions to minimize the consequences of emergency situations</p>	4
THRESHOLD	<p>Know: the basics of scientifically based methods of maintaining safe living conditions in everyday life and in professional activity to preserve the natural environment, ensure sustainable development of society, including in the event of the threat and occurrence of emergencies and military conflicts</p> <p>Be able to: not systematically create and maintain safe living conditions in everyday life and in professional activity to preserve the natural environment, ensure sustainable development of society, including in the event of the threat and occurrence of emergencies and military conflicts</p> <p>Possess: basic skills in the prevention of emergencies and military conflicts; first aid receptions; basic medical knowledge; ways to maintain civil defense and conditions to minimize the consequences of emergency situations</p>	3
INADEQUATE	<p>Don't know: scientifically grounded methods of maintaining safe living conditions in everyday life and in professional activity to preserve the natural environment, ensure sustainable development of society, including in the event of the threat and occurrence of emergencies and military conflicts</p> <p>Not be able to: create and maintain safe living conditions in everyday life and in professional activity to preserve the natural environment, ensure sustainable development of society, including in the event of the threat and</p>	2

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	occurrence of emergencies and military conflicts Do not possess: skills to prevent emergencies and military conflicts; first aid receptions; basic medical knowledge; ways to maintain civil defense and conditions to minimize the consequences of emergency situations	
УК-9 Знает правовые и этические нормы, способен оценивать последствия нарушения этих норм		
TALL	Know: legal and ethnic norms Be able to: assess the consequences of violation of legal and ethnic norms Possess: skills in applying legal and ethnic norms in their work	5
BASE	Know: some legal and ethnic norms Be able to: partially assess the consequences of violation of legal and ethnic norms Have: some skills in applying legal and ethnic norms in their work	4
THRESHOLD	Know: legal and do not know ethnic norms Be able to: partially assess the consequences of violation of legal and ethnic norms with gross errors Possess: some skills in applying legal and ethnic norms in their work with gross errors	3
INADEQUATE	Don't know: legal and ethnic norms Not be able to: assess the consequences of violation of legal and ethnic norms Do not possess: skills to apply legal and ethnic norms in their work	2
УК-10 Способен использовать базовые дефектологические знания в социальной и профессиональной сферах		
TALL	Know: basic defectological terms and components of inclusive competence Be able to: apply basic defectological knowledge in social and professional spheres Possess: skills of interaction in professional and social spheres with persons with disabilities and people with disabilities	5
BASE	Know: some defectological terms and components of inclusive competence Be able to: apply basic defectological knowledge in social and professional spheres with minor errors Possess: some skills of interaction in professional and social spheres with persons with disabilities and people with disabilities	4
THRESHOLD	Know: about having inclusive competence Be able to: apply basic defectological knowledge in social and professional spheres with minor errors Possess: at a low level of interaction skills in the professional and social spheres with persons with disabilities and people with disabilities	3
INADEQUATE	Don't know: basic defectological terms and components of inclusive competence Not be able to: apply basic defectological knowledge in social and professional spheres Do not possess: skills of interaction in the professional and social spheres with persons with disabilities and people with disabilities	2
УК-11 Способен принимать обоснованные экономические решения в различных областях жизнедеятельности		
TALL	Know: the basics of economic and financial issues for making informed economic decisions in various areas of life Be able to: use economic and financial knowledge in different areas of life to make informed economic decisions Possess: the skill of making informed economic and financial decisions in various areas of life	5
BASE	Know: some economic and financial issues for making informed economic decisions in various areas of life Be able to: partially use economic and financial knowledge in different areas of life to make informed economic decisions Possess: the skill of making informed economic and financial decisions in various areas of life at an intermediate level	4

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
THRESHOLD	<p>Know: some economic and financial issues for making informed economic decisions in various areas of life</p> <p>Be able to: apply economic and financial knowledge not for all areas of life</p> <p>Possess: the skill of making informed economic and financial decisions in various areas of life at a low level</p>	3
INADEQUATE	<p>Don't know: the basics of economic and financial issues for making informed economic decisions in various areas of life</p> <p>Not be able to: use economic and financial knowledge in different areas of life to make informed economic decisions</p> <p>Do not possess: the skill of making informed economic and financial decisions in various areas of life</p>	2
УК-12 Способен формировать нетерпимое отношение к коррупционному поведению		
TALL	<p>Know: the essence and characteristics of corrupt behavior, the reasons for its appearance and the forms of its manifestation in various spheres of public life</p> <p>Be able to: identify signs of corrupt behavior</p> <p>Possess: skills of counteracting various manifestations of corrupt behavior</p>	5
BASE	<p>Know: the main characteristics of corrupt behavior, some of the reasons for its appearance and forms of its manifestation in various spheres of public life</p> <p>Be able to: identify signs of corrupt behavior with minor errors</p> <p>Possess: skills in counteracting various manifestations of corrupt behavior at the intermediate level</p>	4
THRESHOLD	<p>Know: the main characteristics of corrupt behavior in various spheres of public life</p> <p>Be able to: identify signs of corrupt behavior with blunders</p> <p>Possess: skills to counteract various manifestations of corrupt behavior at a low level</p>	3
INADEQUATE	<p>Don't know: the essence and characteristics of corrupt behavior, the reasons for its appearance and the forms of its manifestation in various spheres of public life</p> <p>Not be able to: identify signs of corrupt behavior</p> <p>Do not possess: skills to counteract various manifestations of corrupt behavior</p>	2
УК-13 Способен формировать нетерпимое отношение к проявлениям экстремизма, терроризма и противодействовать им в профессиональной деятельности		
TALL	<p>Know: culture, traditions and way of life of representatives of different nationalities, rules of action when suspicious objects are found;</p> <p>Be able to: communicate with people of different nationalities, not seek to subjugate another person, soberly assess the situation, not show panic;</p> <p>Possess: emergency response skills</p>	5
BASE	<p>Know: culture, traditions and way of life of representatives of different nationalities, rules of action when suspicious objects are found, but makes some mistakes;</p> <p>Be able to: communicate with people of different nationalities, not seek to subjugate another person, soberly assess the situation, not show panic, but experience some difficulties;</p> <p>Possess: emergency skills, but has some difficulty</p>	4
THRESHOLD	<p>Know: culture, traditions and way of life of representatives of different nationalities, rules of action when suspicious objects are found, but makes significant mistakes;</p> <p>To be able to: communicate with people of different nationalities, not seek to subjugate another person, soberly assess the situation, not show panic, but is experiencing significant difficulties;</p> <p>Possess: emergency skills, but has significant difficulty</p>	3
INADEQUATE	<p>Do not know: culture, traditions and way of life of representatives of</p>	2

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	different nationalities, rules of action when suspicious objects are found; Not to be able: to contact people of different nationalities, not to seek to subjugate another person, to soberly assess the situation, not to show panic; Do not possess: Emergency Skills	
ОПК-1 Владеет базовыми знаниями о современной научной картине мира на основе положений, законов и методов математических и естественных наук		
TALL	Know: modern ideas about the picture of the world based on the provisions, laws and methods of natural sciences Be able to: use knowledge about the modern scientific picture of the world in their practice Possess: the skills of searching for information about the modern scientific picture of the world based on the provisions, laws and methods of the natural sciences at a high level	5
BASE	Know: some ideas about the picture of the world based on the provisions, laws and methods of natural sciences Be able to: use knowledge about the modern scientific picture of the world in their practice with minor flaws Possess: the skills of searching for information about the modern scientific picture of the world based on the provisions, laws and methods of the natural sciences at the intermediate level	4
THRESHOLD	Know: some ideas about the picture of the world without relying on the provisions, laws and methods of natural sciences Be able to: use knowledge about the modern scientific picture of the world in their practice with gross flaws Possess: the skills of searching for information about the modern scientific picture of the world based on the provisions, laws and methods of natural sciences at a low level	3
INADEQUATE	Don't know: modern ideas about the picture of the world based on the provisions, laws and methods of natural sciences Not be able to: use knowledge about the modern scientific picture of the world in their practice Do not possess: the skills of searching for information about the modern scientific picture of the world based on the provisions, laws and methods of the natural sciences at a high level	2
ОПК-2 Способен понимать принципы работы современных информационно-коммуникационных технологий и использовать их для решения профессиональных задач с учетом требований информационной безопасности		
TALL	Know: modern information and communication technologies Be able to: apply modern information and communication technologies to solve professional problems, taking into account the requirements of information security Possess: skills in working with modern information and communication technologies to solve professional problems, taking into account the requirements of information security	5
BASE	Know: some modern information and communication technologies Be able to: apply modern information and communication technologies to solve professional problems, taking into account the requirements of information security with small errors Possess: skills of working with modern information and communication technologies to solve professional at the intermediate level	4
THRESHOLD	Know: Basics of Information and Communication Technology Be able to: apply modern information and communication technologies to solve professional problems with gross errors without taking into account the requirements of information security Possess: skills of working with modern information and communication technologies to solve professional at a low level	3
INADEQUATE	Don't know: modern information and communication technologies Not be able to: apply modern information and communication technologies to solve professional problems, taking into account the	2

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	requirements of information security Do not possess: skills of working with modern information and communication technologies to solve professional	
ОПК-3 Способен использовать теоретические основы экологии, геоэкологии, природопользования, охраны природы и наук об окружающей среде в профессиональной деятельности		
TALL	Know: basic theories, teachings and concepts in ecology, geoecology, nature management, nature conservation and environmental sciences Be able to: apply basic theories, teachings and concepts to solve practical problems in the field of ecology, geoecology, nature management, nature conservation and environmental sciences Possess: the skills of searching and processing information about theories, teachings and concepts for solving problems in the field of ecology, geoecology, nature management, nature conservation and environmental sciences	5
BASE	Know: some theories, teachings and concepts in the field of ecology, geoecology, nature management, nature conservation and environmental sciences Be able to: apply basic theories, teachings and concepts to solve practical problems in the field of ecology, geoecology, nature management, nature conservation and environmental sciences with minor flaws Possess: the skills of searching and processing information about theories, teachings and concepts for solving problems in the field of ecology, geoecology, nature management, nature conservation and environmental sciences at the intermediate level	4
THRESHOLD	Know: some theories, teachings and concepts in the field of ecology, geoecology, nature management, nature conservation and environmental sciences Be able to: apply basic theories, teachings and concepts to solve practical problems in the field of ecology, geoecology, nature management, nature conservation and environmental sciences with gross flaws Possess: the skills of searching and processing information about theories, teachings and concepts to solve problems in the field of ecology, geoecology, nature management, nature conservation and environmental sciences at a low level	3
INADEQUATE	Don't know: basic theories, teachings and concepts in ecology, geoecology, nature management, nature conservation and environmental sciences Not be able to: apply basic theories, teachings and concepts to solve practical problems in the field of ecology, geoecology, nature management, nature conservation and environmental sciences Not possess: the skills of searching and processing information about theories, teachings and concepts for solving problems in the field of ecology, geoecology, nature management, nature conservation and environmental sciences	2
ОПК-4 Способен применять базовые методы экологических исследований для решения задач профессиональной деятельности		
TALL	Know: basic environmental research methods for solving professional problems Be able to: apply basic methods of environmental research to solve problems of professional activity Possess: the ability to master new methods of environmental research to solve the problems of professional activity	5
BASE	Know: some methods of environmental research to solve the problems of professional activity Be able to: apply basic methods of environmental research to solve professional problems with minor errors Possess: the ability to master new methods of environmental research to solve the problems of professional activity at the intermediate level	4
THRESHOLD	Know: some methods of environmental research to solve the problems	3

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	of professional activity Be able to: apply basic methods of environmental research to solve problems of professional activity with gross errors Possess: the ability to master new methods of environmental research to solve the problems of professional activity at a low level	
INADEQUATE	Don't know: basic environmental research methods for solving professional problems Not be able to: apply basic methods of environmental research to solve professional problems Do not possess: the ability to master new methods of environmental research to solve the problems of professional activity	2
ОПК-5 Способен решать задачи профессиональной деятельности с использованием современных геоинформационных технологий		
TALL	Know: the theoretical foundations of modern geoinformation technologies Be able to: use modern geoinformation technologies as a tool in their professional activities Possess: skills in working with modern geoinformation technologies	5
BASE	Know: partially theoretical foundations of modern geoinformation technologies Be able to: use modern geoinformation technologies with minor errors as a tool in their professional activities Possess: skills in working with modern geoinformation technologies at an intermediate level	4
THRESHOLD	Know: partially theoretical foundations of modern geoinformation technologies Be able to: use modern geoinformation technologies with gross errors as a tool in their professional activities Possess: skills of working with modern geoinformation technologies at a low level	3
INADEQUATE	Don't know: theoretical foundations of modern geoinformation technologies Not be able to: use modern geoinformation technologies as a tool in their professional activities Do not own: skills of working with modern geoinformation technologies	2
ОПК-6 Способен осуществлять профессиональную деятельность в соответствии с нормативными правовыми актами в сфере экологии, природопользования и охраны природы, нормами профессиональной этики		
TALL	Know: the main regulatory legal acts in the field of ecology, nature management and nature protection Be able to: use normative legal acts in the field of ecology, nature management and nature protection, the norms of professional ethics in their professional activities Own: in the search and analysis of regulatory legal acts in the field of ecology, nature management and nature protection	5
BASE	Know: some regulatory legal acts in the field of ecology, nature management and nature protection Be able to: use normative legal acts in the field of ecology, nature management and nature protection, the norms of professional ethics in their professional activities with minor errors Own: in the search and analysis of normative legal acts in the field of ecology, nature management and nature protection at the middle level	4
THRESHOLD	Know: with significant gaps, regulatory legal acts in the field of ecology, nature management and nature protection Be able to: use normative legal acts in the field of ecology, nature management and nature protection, the norms of professional ethics in their professional activities with gross errors Own: in the search and analysis of regulatory legal acts in the field of ecology, nature management and nature protection at a low level	3

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
INADEQUATE	<p>Know: the main regulatory legal acts in the field of ecology, nature management and nature protection</p> <p>Be able to: use normative legal acts in the field of ecology, nature management and nature protection, the norms of professional ethics in their professional activities</p> <p>Own: in the search and analysis of regulatory legal acts in the field of ecology, nature management and nature protection</p>	2
ОПК-7 Способен проектировать, представлять, защищать и распространять результаты своей профессиональной и научно-исследовательской деятельности		
TALL	<p>Know: the specifics of designing, presenting, protecting and disseminating the results of their professional and research activities</p> <p>Be able to: design, represent, defend and disseminate the results of their professional and research activities</p> <p>Possess: skills in design, presentation, protection and dissemination of the results of their professional and research activities</p>	5
BASE	<p>Know: some of the features of the design, presentation, protection and dissemination of the results of their professional and research activities</p> <p>Be able to: design, represent, protect and disseminate the results of their professional and research activities with minor errors</p> <p>Possess: skills in design, presentation, protection and dissemination of the results of their professional and research activities at an intermediate level</p>	4
THRESHOLD	<p>Know: some of the features of the design, presentation, protection and dissemination of the results of their professional and research activities</p> <p>Be able to: design, represent, defend and disseminate the results of their professional and research activities with gross errors</p> <p>Possess: skills in design, presentation, protection and dissemination of the results of their professional and research activities at a low level</p>	3
INADEQUATE	<p>Don't know: features of design, presentation, protection and dissemination of the results of their professional and research activities</p> <p>Not be able to: design, represent, defend and disseminate the results of their professional and research activities</p> <p>Do not possess: skills to design, represent, protect and disseminate the results of their professional and research activities</p>	2
ПК-1 Способен осуществлять выполнение экспериментов и оформление результатов исследований и разработок		
TALL	<p>Know: the methodology for performing experiments and the design features of research and development results</p> <p>Be able to: carry out experiments and document the results of research and development</p> <p>Possess: the skills of conducting experiments and reporting the results of research and development</p>	5
BASE	<p>Know: partially the methodology for performing experiments and the peculiarities of the design of research and development results</p> <p>Be able to: perform experiments and document research and development results with minor errors</p> <p>Possess: the skills of conducting experiments and reporting the results of research and development at an intermediate level</p>	4
THRESHOLD	<p>Know: partially the methodology for performing experiments and make inaccuracies in the presentation of research and development results</p> <p>Be able to: carry out experiments and document the results of research and development with gross errors</p> <p>Possess: the skills of conducting experiments and reporting the results of research and development at a low level</p>	3
INADEQUATE	<p>Don't know: the methodology for performing experiments and the peculiarities of the design of the results of research and development</p> <p>Not be able to: carry out experiments and document the results of research and development</p> <p>Do not possess: the skills of conducting experiments and reporting the</p>	2

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	results of research and development	
ПК-5 Способен разрабатывать проекты и осуществлять контроль загрязнения атмосферного воздуха, водных объектов и образования отходов на предприятии		
TALL	<p>Know: the regulatory framework in the field of regulation and control of air pollution, water bodies and waste generation</p> <p>Be able to: develop projects and monitor air pollution, water bodies and waste generation at the enterprise</p> <p>Possess: skills in collecting and analyzing information for the development of projects and control of air pollution, water bodies and waste generation at the enterprise</p>	5
BASE	<p>Know: partially the regulatory framework in the field of regulation and control of air pollution, water bodies and waste generation</p> <p>Be able to: develop projects and monitor air pollution, water bodies and waste generation at the enterprise with minor errors</p> <p>Possess: skills in collecting and analyzing information for developing projects and monitoring air pollution, water bodies and waste generation at the enterprise at an average level</p>	4
THRESHOLD	<p>Know: superficially the regulatory framework in the field of regulation and control of air pollution, water bodies and waste generation</p> <p>Be able to: develop projects and monitor air pollution, water bodies and waste generation at an enterprise with gross errors</p> <p>Possess: skills in collecting and analyzing information for the development of projects and control of air pollution, water bodies and waste generation at the enterprise at a low level</p>	3
INADEQUATE	<p>Don't know: regulatory framework in the field of regulation and control of air pollution, water bodies and waste generation</p> <p>Not be able to: develop projects and monitor air pollution, water bodies and waste generation at the enterprise</p> <p>Not possess: skills in collecting and analyzing information for developing projects and monitoring air pollution, water bodies and waste generation at the enterprise</p>	2
ПК-6 Способен создавать, внедрять и осуществлять контроль системы производственного экологического контроля на предприятии		
TALL	<p>Know: the basics of the industrial environmental control system at the enterprise</p> <p>Be able to: create, implement and monitor the industrial environmental control system at the enterprise</p> <p>Possess: skills in collecting and analyzing information for the creation, implementation and control of the industrial environmental control system at the enterprise</p>	5
BASE	<p>Know: partly the basics of the industrial environmental control system at the enterprise</p> <p>Be able to: create, implement and monitor the industrial environmental control system at the enterprise with minor errors</p> <p>Possess: skills in collecting and analyzing information for the creation, implementation and control of the industrial environmental control system at the enterprise at the middle level</p>	4
THRESHOLD	<p>Know: superficially the basics of the industrial environmental control system at the enterprise</p> <p>Be able to: create, implement and monitor the system of industrial environmental control at the enterprise with gross errors</p> <p>Possess: skills in collecting and analyzing information for the creation, implementation and control of a production environmental control system at an enterprise at a low level</p>	3
INADEQUATE	<p>Don't know: the basics of an industrial environmental control system at an enterprise</p> <p>Not be able to: create, implement and monitor the industrial environmental control system at the enterprise</p> <p>Do not possess: skills in collecting and analyzing information for the</p>	2

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	creation, implementation and control of the industrial environmental control system at the enterprise	
ПК-7 Способен оценивать состояние окружающей среды для различных целей (экологический мониторинг, оценка состояния отдельных компонентов природной среды, проведение инженерно-экологических изысканий, ОВОС) и на основе полученных данных разрабатывать рекомендации по использованию природных ресурсов, сохранению и восстановлению окружающей и природной среды		
TALL	<p>Know: the specifics of assessing the state of the environment for various purposes (environmental monitoring, assessing the state of individual components of the natural environment, conducting engineering and environmental surveys, EIA) and developing recommendations for the use of natural resources, preservation and restoration of the environment and natural environment</p> <p>Be able to: assess the state of the environment for various purposes (environmental monitoring, assessment of the state of individual components of the natural environment, conduct engineering and environmental surveys, EIA) and, on the basis of the data obtained, develop recommendations for the use of natural resources, preservation and restoration of the environment and natural environment</p> <p>Possess: skills in collecting and analyzing information to assess the state of the environment for various purposes (environmental monitoring, assessing the state of individual components of the natural environment, conducting engineering and environmental surveys, EIA) and, on the basis of the data obtained, develop recommendations for the use of natural resources, conservation and restoration environment and natural environment</p>	5
BASE	<p>Know: some features of assessing the state of the environment for various purposes (environmental monitoring, assessing the state of individual components of the natural environment, conducting engineering and environmental surveys, EIA) and developing recommendations for the use of natural resources, preservation and restoration of the environment and natural environment</p> <p>Be able to: assess the state of the environment for various purposes (environmental monitoring, assessment of the state of individual components of the natural environment, conduct engineering and environmental surveys, EIA) and, based on the data obtained, develop recommendations for the use of natural resources, preservation and restoration of the environment and natural environment with minor errors</p> <p>Possess: skills in collecting and analyzing information for assessing the state of the environment for various purposes (environmental monitoring, assessing the state of individual components of the natural environment, conducting engineering and environmental surveys, EIA) and, based on the data obtained, develop recommendations for the use of natural resources, conservation and restoration environment and natural environment at an average level</p>	4
THRESHOLD	<p>Know: superficially the features of assessing the state of the environment for various purposes (environmental monitoring, assessing the state of individual components of the natural environment, conducting engineering and environmental surveys, EIA) and developing recommendations for the use of natural resources, preservation and restoration of the environment and natural environment</p> <p>Be able to: assess the state of the environment for various purposes (environmental monitoring, assessment of the state of individual components of the natural environment, conduct engineering and environmental surveys, EIA) and, on the basis of the data obtained, develop recommendations for the use of natural resources, preservation and restoration of the environment and natural environment with gross errors</p> <p>Possess: skills in collecting and analyzing information to assess the state of the environment for various purposes (environmental monitoring, assessing the state of individual components of the natural environment,</p>	3

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	conducting engineering and environmental surveys, EIA) and, on the basis of the data obtained, develop recommendations for the use of natural resources, conservation and restoration environment and natural environment at a low level	
INADEQUATE	<p>Don't know: features of assessing the state of the environment for various purposes (environmental monitoring, assessing the state of individual components of the natural environment, conducting engineering and environmental surveys, EIA) and developing recommendations for the use of natural resources, preservation and restoration of the environment and natural environment</p> <p>Not be able to: assess the state of the environment for various purposes (environmental monitoring, assessment of the state of individual components of the natural environment, conduct engineering and environmental surveys, EIA) and, on the basis of the data obtained, develop recommendations for the use of natural resources, preservation and restoration of the environment and natural environment</p> <p>Not possess: skills in collecting and analyzing information for assessing the state of the environment for various purposes (environmental monitoring, assessing the state of individual components of the natural environment, conducting environmental engineering surveys, EIA) and, on the basis of the data obtained, develop recommendations for the use of natural resources, conservation and restoration of the environment and natural environment</p>	2
ПК-8 Способен разрабатывать экологическую документацию организации в соответствии с установленными требованиями в области охраны окружающей среды, в том числе нормативы предельно допустимого воздействия		
TALL	<p>Know: features of the development of environmental documentation of the organization in accordance with the established requirements in the field of environmental protection, including the standards of maximum permissible exposure</p> <p>Be able to: develop environmental documentation of the organization in accordance with the established requirements in the field of environmental protection, including the standards of maximum permissible exposure</p> <p>Possess: skills in collecting and analyzing information for the development of environmental documentation of the organization in accordance with the established requirements in the field of environmental protection, including the standards of maximum permissible exposure</p>	5
BASE	<p>Know: some features of the development of environmental documentation of the organization in accordance with the established requirements in the field of environmental protection, including the standards of maximum permissible exposure</p> <p>Be able to: develop environmental documentation of the organization in accordance with the established requirements in the field of environmental protection, including the standards of maximum permissible exposure with minor errors</p> <p>Possess: skills in collecting and analyzing information for the development of environmental documentation of the organization in accordance with the established requirements in the field of environmental protection, including the standards of maximum permissible exposure at the average level</p>	4
THRESHOLD	<p>Know: superficially features of the development of environmental documentation of the organization in accordance with the established requirements in the field of environmental protection, including the standards of maximum permissible exposure</p> <p>Be able to: develop environmental documentation of the organization in accordance with the established requirements in the field of environmental protection, including the standards of maximum permissible exposure with gross errors</p>	3

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	Possess: skills in collecting and analyzing information for the development of environmental documentation of the organization in accordance with the established requirements in the field of environmental protection, including standards for maximum permissible exposure at a low level	
INADEQUATE	<p>Don't know: features of the development of the organization's environmental documentation in accordance with the established requirements in the field of environmental protection, including the maximum permissible exposure standards</p> <p>Not be able to: develop environmental documentation of the organization in accordance with the established requirements in the field of environmental protection, including the standards of maximum permissible exposure</p> <p>Do not possess: skills in collecting and analyzing information for the development of environmental documentation of the organization in accordance with the established requirements in the field of environmental protection, including standards for maximum permissible exposure</p>	2
ПК-9 Способен проектировать и создавать особо охраняемые природные территории, экологическое обустройство, экологические тропы, экологические сети и каркасы		
TALL	<p>Know: theoretical foundations for the design and creation of specially protected natural areas, ecological development, ecological paths, ecological networks and frames.</p> <p>Be able to: design and create specially protected natural areas, ecological arrangement, ecological trails, ecological networks and frames</p> <p>Possess: skills in collecting and analyzing information for the design of specially protected natural areas, ecological development, ecological paths, ecological networks and frames</p>	5
BASE	<p>Know: partially theoretical foundations for the design and creation of specially protected natural areas, ecological development, ecological paths, ecological networks and frames.</p> <p>Be able to: design and create specially protected natural areas, ecological arrangement, ecological trails, ecological networks and frameworks with minor errors</p> <p>Possess: skills in collecting and analyzing information for the design of specially protected natural areas, ecological development, ecological paths, ecological networks and frames at an intermediate level</p>	4
THRESHOLD	<p>Know: superficially theoretical foundations for the design and creation of specially protected natural areas, ecological development, ecological paths, ecological networks and frames.</p> <p>Be able to: design and create specially protected natural areas, ecological arrangement, ecological trails, ecological networks and frames with gross errors</p> <p>Possess: skills in collecting and analyzing information for the design of specially protected natural areas, ecological development, ecological paths, ecological networks and frames at a low level</p>	3
INADEQUATE	<p>Don't know: theoretical foundations for the design and creation of specially protected natural areas, ecological development, ecological paths, ecological networks and frames.</p> <p>Not be able to: design and create specially protected natural areas, ecological arrangement, ecological trails, ecological networks and frames</p> <p>Not possess: skills in collecting and analyzing information for the design of specially protected natural areas, ecological development, ecological paths, ecological networks and frames</p>	2
ПК-10 Способен разрабатывать и внедрять мероприятия, направленные на выполнение требований в области охраны окружающей среды, внедрению системы экологического менеджмента, разработке и функционировании системы экологического мониторинга, предупреждения возникновения чрезвычайных ситуаций природного и техногенного характера		
TALL	Know: the theoretical foundations of measures aimed at meeting the requirements in the field of environmental protection, environmental	5

Level formation of competence	Assessment "know", "be able", "own"	Scale evaluating
	<p>management systems, environmental monitoring systems, natural and man-made emergencies</p> <p>Be able to: develop and implement measures aimed at meeting the requirements in the field of environmental protection, the introduction of an environmental management system, the development and operation of an environmental monitoring system, prevention of natural and man-made emergencies</p> <p>Possess: skills in the development and implementation of measures to meet the requirements in the field of environmental protection, the implementation of an environmental management system, the development and operation of an environmental monitoring system, prevention of natural and man-made emergencies</p>	
BASE	<p>Know: partially theoretical foundations of measures aimed at meeting the requirements in the field of environmental protection, environmental management systems, environmental monitoring systems, natural and man-made emergencies</p> <p>Be able to: develop and implement measures aimed at meeting the requirements in the field of environmental protection, introducing an environmental management system, developing and operating an environmental monitoring system, preventing natural and man-made emergencies with minor errors</p> <p>Possess: skills in the development and implementation of measures to meet the requirements in the field of environmental protection, the implementation of an environmental management system, the development and operation of an environmental monitoring system, the prevention of natural and man-made emergencies at the middle level</p>	4
THRESHOLD	<p>Know: superficially theoretical foundations of measures aimed at meeting the requirements in the field of environmental protection, environmental management systems, environmental monitoring systems, natural and man-made emergencies</p> <p>Be able to: develop and implement measures aimed at meeting the requirements in the field of environmental protection, the implementation of an environmental management system, the development and operation of an environmental monitoring system, prevention of natural and man-made emergencies with gross errors</p> <p>Possess: skills in the development and implementation of measures to meet the requirements in the field of environmental protection, the implementation of an environmental management system, the development and operation of an environmental monitoring system, the prevention of natural and man-made emergencies at a low level</p>	3
INADEQUATE	<p>Don't know: theoretical foundations of measures aimed at meeting the requirements in the field of environmental protection, environmental management systems, environmental monitoring systems, natural and man-made emergencies</p> <p>Not be able to: develop and implement measures aimed at meeting environmental requirements, introducing an environmental management system, developing and operating an environmental monitoring system, preventing natural and man-made emergencies</p> <p>Not possess: skills in the development and implementation of measures to meet the requirements in the field of environmental protection, the implementation of an environmental management system, the development and operation of an environmental monitoring system, prevention of emergencies of natural and man-made nature</p>	2

4. PLACE OF STATE FINAL CERTIFICATION IN THE STRUCTURE OF OP

State final certification refers to block (B.3) "State final certification"
Preceding (supporting) disciplines, practices:
Basics of Russian Statehood
Life safety
Foreign Language (English) [Basic Level]
History
Logic
General theory of systems
Basics of the Project Management
Sport
Financial literacy
Philosophy
Sociology
Physical training
Geography
Geoinformatics
Geology
Informatics
Geocological base of natural resource management
Mathematics
Fundamentals of Biology and Ecology
Soil science
Study of geospheres
Physics
Chemistry
Economy of natural resource management
Experimental methods in ecology
Digital geography in industry 4.0
Introduction in specialization
Environment and New Energetics
Urboecology
Basics of wind power
Basics of solar power
Nature conservation
Basics of energetic of water and internal parts of the Earth
Geochemistry of Environment
Geoinformational technologies in ecological engineering
Rate setting of atmospheric pollution
Rate setting of wastes
Rate setting of water pollution
Biological research methods in environmental engineering
Physico-chemical research methods in environmental engineering
Technogenic systems and ecological risks
Ecological projection and expertise
Ecological monitoring
Law fundamentals of natural resource management and environmental conservation
Academic practice in Nature conservation
Academic practice in Urboecology
Group project work [natural resource management]

Professional internship aimed at acquiring professional skills and experience in the vocational sphere

Research work [natural resource management]

Undergraduate practice

State final certification is carried out in the 4th year in the 12th trimester for full-time education.

5. METHODOLOGICAL MATERIALS DEFINING PROCEDURES FOR EVALUATING THE RESULTS OF THE LEARNING OF THE EDUCATIONAL PROGRAM

5.1. Final qualifying work

The final qualification work is the last attestation test of the state final attestation of students in the direction of training 05.03.06 Ecology and nature management, profile "Ecological Engineering and New Energetics".

5.1.1. Methodological guidelines for preparation for Graduation qualification work

Graduation qualification work is an important stage of the educational process aimed at training highly qualified specialists. The implementation of the FQP is a comprehensive test of the preparation of the student for practical activities, as well as the most important form of implementation of the skills of creative, independent work of the student acquired in the learning process. FQP protection is one of the types of attestation tests provided by the SFA.

FQP is a complex, independent work of a student, the main goal and content of which is a comprehensive analysis, research or development on one of the issues of a theoretical or practical nature, corresponding to the direction of training.

The purpose of the FQP is not only to consolidate the knowledge acquired during the period of study, but also to expand, supplement the knowledge acquired at the university in general theoretical and special disciplines, as well as to develop the necessary skills for independent scientific work.

The FQP shows: the level of fundamental and special training of the student; his ability to analyze and generalize information in the field of environmental management, environmental assessment and environmental safety; acquired skills in solving urgent practical problems in the field of ecology and nature management. For this purpose, the GRADUATION QUALIFICATION WORK is required to show possession of modern technologies, as well as the ability to systematize and use the necessary information.

During the preparation of the following tasks are solved:

- independent research of topical issues of professional activity;
- systematization, consolidation and expansion of theoretical knowledge in special disciplines;
- deepening the skills of conducting students' independent research work, working with various reference and special literature;
- mastering the research methodology in solving problems developed in the GRADUATION QUALIFICATION WORK ;
- study and use of modern technologies in the field of ecology and nature management.

When performing FQP, the student demonstrates his ability and ability, relying on the knowledge gained, skills and formed general cultural, general professional and professional competencies, independently solve the problems of his professional activity at the modern level, professionally present special information, scientifically argue and defend his point of view.

The FQP should contain: rationale for the choice of the research topic, analysis of the elaboration of this issue in domestic and foreign scientific literature, setting the goal and objectives of the research. The GRADUATION QUALIFICATION WORK provides a

consistent and detailed presentation of the results obtained and on their basis, clear conclusions are formulated. In the conclusion of the GRADUATION QUALIFICATION WORK , a list of used literature should be presented. If necessary, additional materials (graphs, tables, etc.) can be included in the GRADUATION QUALIFICATION WORK , which are issued in the form of attachments.

FQP is allowed to be defended only after its preliminary approval by the head of the graduating department in the presence of a positive response from the head.

The defense of the FQP is carried out at a meeting of the State Examination Commission. The results of the defense of the FQP are the basis for the SEC to make a decision on the assignment of the appropriate qualification (degree) and the issuance of a state-recognized diploma.

5.1.2. Requirements for the registration of the final qualifying work

The final qualifying work must comply with the Guidelines for the preparation of term and final qualifying works for bachelors and masters of the Department of Biogeocenology and Environmental Protection of the Faculty of Geography of Perm State National Research University, approved by the head of the department.

The issued FQP must be assessed for borrowings using the AntiplaSFAt system. If plaSFARism is not eliminated after checking the work or the student's inability for various reasons to eliminate plaSFARism within the timeframe established by the regulation, the work is not allowed for protection, it must be processed.

5.1.3. GRADUATION QUALIFICATION WORK protection procedure

The final qualifying work is a work performed by a student (several students together), demonstrating the level of preparedness of a graduate for independent professional activity.

The type of final qualifying work, the requirements for it, the procedure for its implementation and the criteria for its assessment are established by the organization independently.

The organization approves the list of topics of graduation qualification works offered to students (hereinafter referred to as the list of topics), and brings it to the attention of students no later than 6 months before the start date of the state final certification.

Upon the written application of the student (several students performing the final qualifying work together), the organization can, in the manner established by it, provide the student (students) with the opportunity to prepare and defend the final qualifying work on the topic proposed by the student (students), if it is reasonable to develop it for practical use. in the relevant field of professional activity or at a specific object of professional activity.

To prepare the final qualifying work for the student (several students performing the final qualifying work together), the executive act of the organization assigns the head of the final qualifying work from among the employees of the organization and, if necessary, a consultant (consultants).

Not later than 30 calendar days before the day of the first state certification test, the organization approves by an administrative act the schedule of state certification tests (hereinafter - the schedule), which indicates the dates, time and place of the state certification tests and pre-examination consultations, and brings the schedule to the attention of the student , members of state examination commissions and appeal commissions, secretaries of state examination commissions, managers and consultants of final qualifying works.

When forming the schedule, a break is established between state certification tests lasting at least 7 calendar days.

After the completion of the preparation of the final qualifying work for the student, the head of the final qualifying work submits to the organization a written review of the student's work during the preparation of the final qualifying work (hereinafter referred to as the review).

In the case of the completion of the final qualifying work by several students, the head of the final qualifying work submits to the organization a review of their joint work during the preparation of the final qualifying work.

The organization ensures that the student is familiarized with the review no later than 5 calendar days before the day of defense of the final qualifying work.

The final qualifying work, feedback is submitted to the state examination commission no later than 2 calendar days before the day of defense of the final qualifying work.

In preparation for the defense of the FQP, the student needs to draw up abstracts or a synopsis of his speech, coordinate it with his supervisor.

To protect the provisions considered in the work, justify the conclusions, if necessary, you can prepare visual materials: tables, graphs, diagrams and refer to them during the defense. It is advisable to type visual materials on a computer and present at the defense for each member of the GEC.

The University has established a unified procedure for the protection of graduate qualification works. The auditorium for the defense must be equipped with multimedia equipment to demonstrate an electronic presentation.

The texts of the final qualifying works, with the exception of the texts of the final qualifying works, containing information constituting a state secret, are posted by the organization in the electronic library system of the organization and are checked for the amount of borrowing. The procedure for placing the texts of final qualifying works in the electronic library system of the organization, checking for the amount of borrowing, including meaningful, identifying unauthorized borrowing is established by the organization.

Access of persons to the texts of final qualifying works must be ensured in accordance with the legislation of the Russian Federation, taking into account the seizure of production, technical, economic, organizational and other information, including the results of intellectual activity in the scientific and technical sphere, on the ways of carrying out professional activities, which have actual or potential commercial value due to their unknown to third parties, in accordance with the decision of the copyright holder.

By the beginning of the defense of the FQP, the audience should be prepared:

- order on the composition of the State Examination Commission (SEC);
- information about graduates admitted to the defense;
- HEC protocols.

According to this procedure, the defense of the final qualifying work is carried out at an open meeting of the SEC, the composition of which is approved is the rector of the university. Protection is carried out by each student individually at open meetings of the SEC with the participation of at least two-thirds of its composition, as a rule, with the direct participation of the head of work.

The defense takes place publicly, therefore, in addition to the students, the scientific adviser and the reviewer, other interested persons and guests may be present.

The protection procedure is as follows. The chairman of the GEC or its member introduces those present to the topic of the work and gives the floor to the student to speak. The student expounds the main provisions of his work, focusing the attention of those present on the conclusions and proposals. The report is delivered freely, in your own words, without reading the text, but only relying on its provisions. The presentation should substantiate the relevance of the topic, the novelty of the problems and conclusions under consideration, the degree of development of the topic, briefly outline the main content, conclusions and proposals with convincing arguments. It should be borne in mind that the student is given no more than 10 minutes to speak. After the speech, the student commission, as well as all those present, ask questions on the topic of the work presented for the defense.

The student answers the questions, as a rule, immediately after the report, but additional training is possible with the consent of the GEC. If necessary, the student can use the explanatory note of the GRADUATION QUALIFICATION WORK . After answering the

questions, the floor is given to the scientific supervisor of the work (in the absence of him at the defense, the review and review are read out).

The GEC's decision on the FQP assessment is made at a closed meeting, taking into account the opinion of the scientific supervisor, the assessment given by the external reviewer, the content of the introductory speech, the graduate's outlook, his ability to speak publicly, defend his interests, the depth of answers to questions, customer reviews (on custom topics).

The result of the defense is determined by the grades "excellent", "good", "satisfactory", "unsatisfactory" and is announced on the same day after the minutes of the meetings of the examination committee for the defense of final qualifying works are drawn up in the prescribed manner.

In cases where the defense of the FQP is recognized as unsatisfactory, according to the decision of the State Electoral Commission, the student is expelled from the Perm State National Research University and instead of a diploma receives a certificate of the disciplines listened to and passed according to the curriculum without qualification.

The GEC makes a decision whether the student can submit the same work for re-defense with revision determined by the commission, or is obliged to perform work on a new topic.

The decision of the GEC is recorded in the protocol.

The result of the defense of the final qualifying work and the decision to award the qualification to the graduate are made out in the record book and certified by the signatures of all members of the SEC who attended the meeting.

To protect the final qualifying work - an audience equipped with presentation equipment (projector, screen, laptop) with appropriate software, chalk (s) or marker board.

5.1.4. Methodological recommendations for the assessment of FQP by the scientific advisor

The completed FQP is submitted for review to the scientific advisor. The duties of the scientific supervisor of the FQP are as follows:

- assistance to the student in choosing the topic of the GRADUATION QUALIFICATION WORK and developing a plan for its implementation;
- assistance in choosing a research methodology and organizing the process of writing a work;
- consulting on the selection of regulations, literature, statistical and factual material;
- systematic control over the completeness and quality of the prepared chapters of the FQP in accordance with the developed plan and timely submission of work to the department;
- preparation of a written review of the work with an assessment of the quality of its performance in accordance with the requirements for it;
- Carrying out preparation and preliminary defense of FQP in order to identify the student's readiness for defense.
- taking part in the protection of GRADUATION QUALIFICATION WORK s and responsibility for the quality of the GRADUATION QUALIFICATION WORK s submitted for protection.

After receiving the final version of the GRADUATION QUALIFICATION WORK , the supervisor fills out a written feedback forum. In the response, the supervisor gives an analysis of the work done, notes the student's personal contribution to substantiating the conclusions and proposals, and shows the features of the study. The review ends with a conclusion about the possibility or impossibility of admitting this work to protection. Then the supervisor signs the FQP on the title page.

The size of the review should be from one to three pages of typewritten text.

5.1.5. Methodological recommendations for the student's report on the topic of Graduation qualification work

The defense of the FQP begins with a student's report on the topic of work. The duration of the report is from 10 minutes. In the report, first of all, it is necessary to substantiate the relevance of the chosen topic, then it is necessary to clearly formulate the purpose of the research being carried out and tell about the work done directly by the author, focusing on the results obtained in the course of its implementation. The report should not present the theoretical aspects of the issue under consideration if they are not controversial. The student must express the main content of his work freely, without reading the written text.

It is recommended in the process of the report to use a previously prepared visual graphic material (tables, diagrams), illustrating the main provisions of the work. The amount of illustrative material is not limited.

5.1.6. Methodological recommendations for the assessment of FQP by members of the State Examination Commission

The defense of the FQP aims to assess the graduate's readiness for professional activity.

The criteria for evaluating the FQP for its defense at the State Electoral Commission should be:

- compliance of the content and design of the FQP with the established requirements;
- the degree of fulfillment by the graduate of the tasks received from the department for the development of specific issues of the FQP theme;
- the depth of development of the problems considered in the work, saturation with practical material;
- the significance of the conclusions and proposals made in the work and the degree of their validity;
- the maturity of the graduate's speech at the defense of the FQP: the logic of presenting his recommendations, the completeness of answers to the questions asked, the quality of answers to the comments of the reviewer and those present at the defense.

The Commission evaluates the defense of the GRADUATION QUALIFICATION WORK at a closed meeting. When giving an assessment, the commission is guided by the approximate criteria for assessing FQP:

- "excellent" is awarded for qualifying work, which is an independent and completed research, includes a theoretical section containing a deep analysis of the scientific problem and the current state of its study. The study was carried out on the basis of a sufficient source base, using current methodological approaches. The work has a positive review from the supervisor. When defending it, the graduate shows deep knowledge of the research topic, freely operates with research data, makes sound proposals, effectively uses new information technologies when presenting his report, convincingly illustrating the report with diagrams, diagrams, tables, graphs, confidently answers the questions posed.

- "good" is awarded for qualifying work, which is of a research nature, has a well-presented theoretical section, which presents a fairly detailed analysis and critical analysis of conceptual approaches and practical activities, a consistent presentation of the material with appropriate conclusions, but with insufficiently substantiated proposals. The work has a positive review from the supervisor. When defending it, the graduate shows knowledge of the issues of the research topic, operates with research data, makes suggestions on the research topic, during the report uses visual material (tables, graphs, diagrams, etc.), answers the questions posed without much difficulty;

- "satisfactory" is awarded for qualifying work, which contains a theoretical chapter, elements of research, is based on practical material, but there is no deep analysis of the scientific problem; the work shows the inconsistency of the presentation of the material; the proposals presented are not sufficiently substantiated. The manager's response contains comments on the content of the work. During the defense, the graduate shows uncertainty, shows poor knowledge

of the issues of the topic, does not always give substantiated and comprehensive answers to the questions asked, makes significant mistakes;

- “unsatisfactory” is awarded for qualifying work that is not consistent, does not meet the requirements set out in the guidelines of the graduating departments. There are no conclusions in the work. There are significant remarks in the scientific advisor's review. When defending the work, the graduate finds it difficult to answer the questions posed, makes significant mistakes. Presentation materials and handouts have not been prepared for defense.

In case of a positive assessment, the State Electoral Commission makes a decision on awarding the student a qualification (degree) with the issuance of a diploma of graduation from Perm State National Research University.

The organization of the state final certification for people with disabilities and persons with disabilities is determined by the local normative act of the Perm State National Research University.

6. ESTIMATED FACILITIES OF STATE FINAL CERTIFICATION

Approximate topics of final qualifying works:

1. Impact of oil production enterprises on the environment ...
2. Actual problems of engineering and environmental surveys
3. Determination of the permissible content of oil and oil products in soils ...
4. Landscape and ecosystem studies during engineering and environmental surveys
5. Stray dogs as an element of the urban environment
6. Ecological and geographical outline ...
7. Impact of oil products on atmospheric air
8. Inventory of natural resources by means of GIS

Sample questions asked during the public defense of the Graduation qualification work:

1. Formulate the relevance of the Graduation qualification work.
2. Formulate the purpose of the Graduation qualification work.
3. Formulate the objectives of the study.
4. Determine the degree of elaboration of the problem.
5. What are the main sources of information about the state of the environment.
6. Substantiate your conclusions on the assessment of the degree of pollution of the atmosphere (or other natural resource).
7. List the factors of the impact of the activities of a particular enterprise on the environment.
8. What regulatory documents were used in assessing the impact of the enterprise on the environment.
9. List the methods of landscape research.
10. Formulate conclusions on the obtained research results.
11. List the recommendations for the practical implementation of the results.
12. Name the computer tools that you used in the research process.

6.1. Methodological materials defining procedures for assessing knowledge, abilities, skills and (or) experience of activities, characterizing the formation of competencies

Evaluation tools include evaluation materials that are classified by type of control:

- intermediate certification, carried out by the teacher after studying the theoretical material of the academic discipline, passing the educational, industrial and pre-diploma practice;
- SFA conducted by HES.

Evaluation tools for SIA graduates include indicators and criteria for assessing the result of the state examination and the implementation and protection of FQP of the main parameters of the process or the result of activity, certified as components of universal, general professional and professional competencies. Performance indicators reflect an integrated performance result.

Evaluation tools for SIA provide a step-by-step and integral assessment of graduates' competencies.

The achievement of indicators for assessing the results of the state exam and defense of the FQP is assessed by the State Electoral Commission, taking into account the completeness of answers to the questions of the examination card, the relevance of the chosen topic, practical significance, performing level, as well as methodological and informational support. The criteria for assessing the results of the state exam and defense of the FQP are unambiguous and logical

Requirements for the content, volume and structure of FQP are determined by the Methodological Guidelines for the preparation of coursework and final qualifying works for bachelors and masters of the Department of Biogeocenology and Environmental Protection of the Faculty of Geography of Perm State National Research University.

The developed tasks for the FQP, the main indicators for assessing the results of the implementation and defense of the FQP and the evaluation criteria (evaluation tools of the SFA) undergo preliminary examination for compliance with the requirements and are approved at a meeting of the issuing department.

Assessment of the competencies of HEC graduates in stages, taking into account the assessments of: universal, general professional and professional competencies of graduates, demonstrated during the state exam and defense of FQP, taking into account the results of intermediate certification in academic disciplines.

Criteria for assessing the state exam:

- demonstration of deep, comprehensive knowledge of the material;
- understanding the essence and relationship of the processes and phenomena under consideration;
- answers to the main questions of the examination card;
- answers to additional answers of exam tickets;
- argumentation of answers to questions;
- clarity and consistency of oral speech;
- protection of their own professional positions.

Graduation qualification work evaluation criteria:

- understands the relevance and importance of the chosen topic;
- searches for and uses the information necessary for the effective performance of professional tasks;
- establishes a connection between theoretical and practical results and their compliance with the goals, objectives of the research;
- knows how to structure knowledge, solve complex practical problems;
- summarizes the research results, draws conclusions;
- logically builds up the defense, argues the answers to questions;
- defends his own professional position;
- carries out self-assessment of activities and results (awareness and generalization of their own level of professional development);
- submits work, drawn up in accordance with the basic requirements;
- accompanies the defense with a high-quality electronic presentation, corresponding to the structure and content of the GRADUATION QUALIFICATION WORK .

7. LIST OF BASIC AND ADDITIONAL EDUCATIONAL LITERATURE REQUIRED FOR SFA

7.1. Main literature

№ п/п	Bibliographic description	Library
1	Tanay Sidki Uyar. Towards 100% Renewable Energy. Techniques, Costs and Regional Case-Studies. Springer International Publishing Switzerland 2017. Online ISBN 978-3-319-45659-1. Текст электронный: // https://link.springer.com/book/10.1007/978-3-319-45659-1	Springer
2	Joao Fernando Gomes de Oliveira, Tatiana Costa Guimarães Trindade. Sustainability Performance Evaluation of Renewable Energy Sources: The Case of Brazil. Springer International Publishing AG, part of Springer Nature 2018. Online ISBN 978-3-319-77607-1. Текст электронный: // https://link.springer.com/book/10.1007/978-3-319-77607-1	ELiS
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5	Zhaoqing Yang, Andrea Copping. Marine Renewable Energy. Resource Characterization and Physical Effects. Springer International Publishing AG 2017. Online ISBN 978-3-319-53536-4. Текст электронный: // https://link.springer.com/book/10.1007/978-3-319-53536-4	Springer
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8	Espen Moe. Renewable Energy Transformation or Fossil Fuel Backlash. Vested Interests in the Political Economy. Palgrave Macmillan, London, 2015. Online ISBN 978-1-137-29879-9. Текст электронный. https://link.springer.com/book/10.1057/9781137298799	Springer
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10	Stavros Kolios, Andrei V. Vorobev, Gulnara R. Vorobeva, Chrysostomos Stylios. GIS and Environmental Monitoring. Applications in the Marine, Atmospheric and Geomagnetic Fields. Springer International Publishing AG 2017. Online ISBN 978-3-319-53086-4. Текст электронный: // https://link.springer.com/book/10.1007/978-3-319-53086-4	Springer
11	. Lubos Matejicek. Assessment of Energy Sources Using GIS. Springer International Publishing AG 2017. Online ISBN 978-3-319-52694-2. Текст электронный: // https://link.springer.com/book/10.1007/978-3-319-52694-2	Springer
12	Nyussupova, G. N. Free and open source GIS software : educational manual / G. N. Nyussupova, Sh. G. Kairova, A. M. Kalimurzina. — Алматы : Казахский национальный университет им. аль-Фараби, 2014. — 84 с. — ISBN 978-601-04-1034-3. — Текст : электронный // Электронно-библиотечная система IPR BOOKS : [сайт] http://www.iprbookshop.ru/59734	Springer
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15	Michael Evan Goodsite, Matthew Stanley Johnson, Ole Hertel. Air Pollution Sources, Statistics and Health Effects. Springer, New York, NY, 2021. Online ISBN 978-1-0716-0596-7 https://link.springer.com/referencework/10.1007/978-1-0716-0596-7	Springer
16	Filippo Schilleci Vincenzo Todaro Francesca "Lotta Connected Lands New Perspectives on Ecological Networks Planning" ISBN 978-3-319-55233 [Электронный ресурс] URL: https://link.springer.com/book/10.1007/978-3-319-55233-0	Springer
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7.2. Additional literature

№ п/п	Библиографическое описание	Библиотека
1	Yoram Krozer. Theory and Practices on Innovating for Sustainable Development. Springer International Publishing Switzerland 2016. Online ISBN 978-3-319-18636-8. Текст электронный: // https://link.springer.com/book/10.1007/978-3-319-18636-8	Springer
2	Davide Geneletti, Chiara Cortinovis, Linda Zardo, Blal Adem Esmail: "Planning for Ecosystem Services in Cities", 2020, ISBN 978-3-030-20024-4. [Электронный ресурс]. https://link.springer.com/book/10.1007/978-3-030-20024-4	Springer
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15	Fausto Pedro García Márquez, Alexander Karyotakis, Mayorkinos Papaefthymiou. Renewable Energies. Business Outlook 2050. Springer, Cham, 2018. Online ISBN 978-3-319-45364-4. Текст электронный. https://link.springer.com/book/10.1007/978-3-319-45364-4	Springer
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7.3. Internet resources

1. Network local resources (authorized access to work with full-text books and journals, databases, abstract and information resources). - Access mode: <http://library.psu.ru/>

2. Network remote resources:

- Electronic library system IPRbooks - Access mode: <http://www.iprbookshop.ru/> (access by login and password from any computer connected to the Internet);
- ELiS - electronic library - Access mode: <http://in.psu.ru/elis/> (access by login and password from any computer connected to the Internet);
- Electronic library system Znanium. - Access mode: <http://znanium.com> (access by login and password from any computer connected to the Internet);
- Library BiblioTech - Access mode: <https://psu.bibliotech.ru/> (access by login and password from any computer connected to the Internet);
- Scientific electronic library eLibrary. - Access mode: <http://www.elibrary.ru> (access from any computer connected to the Internet);
- Springer Publishing Company - Access mode: <https://www.springer.com/gp> (accessible from any computer with an Internet connection).
- ProQuest - Access mode: <https://about.proquest.com/> (access from any computer connected to the Internet).
- Electronic library system IPRbooks - Access mode: <https://www.iprbookshop.ru/> (access from any computer connected to the Internet).
- Onlinelibrary.wiley - Access mode: <https://onlinelibrary.wiley.com/> (access from any computer connected to the Internet).