

Документ подписан простой электронной подписью  
Информация о владельце:  
ФИО: Ястребов Олег Александрович  
Должность: Ректор  
Дата подписания: 12.05.2024  
Уникальный программный ключ:  
ca953a0120d891083f939673078ef1a989dae18a

**Federal State Autonomous Educational Institution of Higher Education  
Peoples' Friendship University of Russia named after Patrice Lumumba  
RUDN University**

---

educational division (faculty/institute/academy) as higher education programme developer

## **INTERNSHIP SYLLABUS**

### **Work Experience Internship**

---

internship title

### **Industrial practice**

---

internship type

### **Recommended by the Didactic Council for the Education Field of:**

---

**05.04.06 "Ecology and Nature Management**

field of studies / speciality code and title

### **The student's internship is implemented within the professional education programme of higher education:**

---

**Integrated Solid Waste Management**

higher education programme profile/specialisation title

## 1. INTERNSHIP GOAL(s)

The "Work Experience Internship" is part of the program 05.04.06 "Ecology and Environmental Management" ("Integrated Municipal Solid Waste Management") and takes place in the 2nd semester of the 1st year. The internship is delivered by the Department of Environmental Safety and Product Quality Management.

**The aim of the Work Experience Internship is:** systematization and deepening of acquired theoretical and practical knowledge in the specialized disciplines of the educational program "Integrated Solid Waste Management (in English)", application of knowledge and skills in solving specific professional problems at the current level; collection, systematization, and processing of factual material on the topic of the final qualifying work; preparation of analytical materials on the research topic.

### **The objectives of the Work Experience Internship are:**

1. Consolidation, deepening, and expansion of the theoretical knowledge, skills, and abilities acquired by students during theoretical training at the university in the disciplines of the professional cycle;
2. Familiarization with the specifics of the work of specialized environmental and analytical services of organizations and enterprises of various industries and types of ownership, the activities of state and municipal authorities in the field of production and consumption waste management, academic and departmental research organizations;
3. Mastery of professional and practical skills and methods of searching for information in information networks, and its processing and systematization;
4. Developing skills in identifying and analyzing environmental problems, proposing solutions, and evaluating expected results;
5. Preparing analytical materials to substantiate the problem being studied in the master's thesis;
6. Preparing scientific reports for presentation at conferences, scientific seminars, and forums; writing scientific articles and abstracts for publication in collections of scientific papers and conference proceedings; and implementing contracts (orders) with organizations.

These internship tasks are consistent with the research, organizational, managerial, and design-and-production professional activities of master's students.

**As a result of the internship, the master's student must:** consolidate their acquired theoretical knowledge in the field of ecology and nature management using modern information technologies and comparative analysis; collect the necessary information for the most comprehensive ecological and economic analysis of production processes and facilities that are the subjects of the master's thesis; and select analysis (evaluation) methods for preparing analytical materials on the research topic; independently propose and justify methods for solving professional tasks at the modern level.

## 2. REQUIREMENTS FOR LEARNING OUTCOMES

*Table 2.1. List of competences that students acquire during the internship*

Competence code	Competence descriptor	Competence formation indicators (within this course)
GC-1	Able to carry out a critical analysis of problem situations based on a systems approach and to develop a strategy for action.	<p><b>GC-1.1</b> Knows how to solve problematic tasks and to identify their components and the relationships between them;</p> <p><b>GC-1.2</b> Able to search for possible solutions to a problematic task based on accessible and reliable sources of information;</p> <p><b>GC-1.3</b> Possesses a strategy for resolving a problem situation based on systemic and interdisciplinary approaches;</p>
GC -2	Able to manage a project at all stages of its life cycle.	<p><b>GC-2.1</b> Formulates a project task based on the identified problem and a method for its solution through the implementation of project management;</p> <p><b>GC-2.2</b> Develops a project concept within the framework of the identified problem (in the chosen professional field): formulates the goal, objectives, substantiates the relevance, significance (scientific, practical, methodological, or other depending on the type of project), expected results, and possible areas of their application;</p> <p><b>GC-2.3</b> Develops a project implementation plan using planning tools; develops and analyzes alternative project options to achieve the intended results;</p> <p><b>GC-2.4</b> Plans the necessary resources, including taking into account their substitutability</p>
GC -3	Able to organize and lead the work of a team, developing a team strategy to achieve the set goal.	<p><b>GC-3.1</b> Possesses the skills to monitor compliance with requirements.</p> <p><b>GC-3.2</b> Able to develop a team work plan for activities aimed at meeting environmental protection requirements, taking into account best practices;</p> <p><b>GC-3.3</b> Able to delegate authority to team members and distribute tasks, provide feedback on results, and take responsibility for the overall outcome.</p>
GC -4	Able to apply modern communication technologies in the state language of the Russian Federation and foreign language(s) for academic and professional interaction.	<p><b>GC-4.1</b> Knows the lexical, grammatical, stylistic, and sociocultural features of the scientific style in the state language of the Russian Federation, specifically the academic sub-style of the scientific style of natural sciences, in both Russian and the studied foreign language;</p> <p><b>GC-4.2</b> Possesses professional vocabulary in a foreign language; orthographic, orthoepic, lexical, grammatical, and stylistic norms of scientific speech; strategies for comprehending and producing oral and written scientific texts in the field of specialization;</p> <p><b>GC-4.3</b> Able to extract new information based on the analysis of foreign-language scientific literature and other sources; to select and systematize materials on a given/chosen topic and to compile annotations, abstracts, and reviews in a foreign language and in Russian; to produce written translations of scientific</p>

Competence code	Competence descriptor	Competence formation indicators (within this course)
		literature in the field of specialization from a foreign language into Russian; <b>GC-4.4</b> Presents the results of research and project activities at various public events, participates in academic and professional discussions in Russian (and/or a foreign language);
GC -5	Able to analyze and account for cultural diversity in the process of intercultural interaction.	<b>GC-5.1</b> Knows international practices of harmonizing the relationship between human society and nature in order to achieve sustainable development; <b>GC-5.2</b> Knows and understands the characteristics of different cultures and nations; <b>GC-5.3</b> Possesses the skills of building social interaction while taking into account the common and distinctive differences of cultures and religions;
GC -6	Able to determine and implement priorities of one's own activities and ways to improve them based on self-assessment.	<b>GC-6.1</b> Able to analyze large arrays of professional content information; <b>GC-6.2</b> Able to conduct analysis, synthesis, and optimization of solutions to assigned tasks; <b>GC-6.3</b> Possesses the skills to build a flexible professional trajectory, taking into account accumulated professional experience, dynamically changing labor market requirements, and personal development strategy.
GC -7	Able to use basic knowledge in the field of information culture.	<b>GC-7.1</b> Applies statistical methods in scientific and practical research; uses computer tools for data processing and problem solving; <b>GC-7.2</b> Formulates a real data processing task in terms of the underlying real-world problem; <b>GC-7.3</b> Knows the principles and techniques of modern corporate information culture and the fundamentals of the digital economy.
GPC-1	Able to use philosophical concepts and the methodology of scientific knowledge when studying various levels of organization of matter, space, and time.	GPC -1.1 Knows the interrelationship of the intuitive, unconscious, and conscious in scientific creativity; the social and psychological motives of scientific creativity; the problems of moral evaluation of scientific creativity; bioethics; and the integrative tendencies of modern knowledge; GPC -1.2 Provides methodological justification for scientific research; GPC -1.3 Uses the principles and categories of philosophy to evaluate and analyze various social tendencies, facts, and phenomena associated with the contemporary development of natural science and technology; GPC -1.4 Possesses the skills of historical and methodological analysis of scientific research and its results; all forms of scientific communication; techniques of discussion and debate; skills of public speaking and written argumentative presentation of one's own point of view;

Competence code	Competence descriptor	Competence formation indicators (within this course)
GPC-2	Able to use specialized and emerging branches of ecology, geocology, and natural resource management when solving research and applied tasks in professional activities	<p>GPC -2.1 Has a systematic understanding of the theoretical and methodological foundations of environmental regulation;</p> <p>GPC -2.2 Possesses modern methods for obtaining and assessing geochemical information to solve theoretical and practical problems of environmental geochemistry in the field of ecology and natural resource management for environmental protection purposes;</p> <p>GPC -2.3 Has basic knowledge of fundamental branches of biology to the extent necessary for mastering the fundamentals of ecology and natural resource management;</p> <p>GPC -2.4 Analyzes the current system of environmental regulation for various areas of natural resource management;</p> <p>GPC -2.5 Identifies and describes biological diversity, and provides assessments using modern methods of quantitative information processing;</p>
GPC-3	Able to apply ecological research methods to solve research and applied tasks in professional activities.	<p>GPC -3.1 Able to identify problems and tasks of scientific research in the field of urban geography and urban environmental problems, and possesses the skills to solve them;</p> <p>GPC -3.2 Possesses modern methods for assessing geocological information to solve theoretical and practical problems of natural resource management.</p> <p>GPC -3.3 Possesses skills in forecasting meteorological reactions, assessing the climatic potential of regions, and evaluating the objectivity of climate change scenarios;</p> <p>GPC -3.4 Uses modern databases, methods for obtaining and working with theoretical and empirical information, and GIS technologies;</p> <p>GPC -3.5 Navigates the current system of regulatory and legal frameworks governing engineering-ecological surveys and environmental impact assessments of urban agglomerations;</p>
GPC-4	Able to apply regulatory legal acts in the field of ecology and natural resource management, as well as norms of professional ethics.	<p>GPC-4.1 Models and predicts the behavior of natural and natural-technogenic ecosystems of varying degrees of complexity, and finds ways to optimize them;</p> <p>GPC-4.2 Knows international practices for the development, harmonization, and application of environmental standards;</p> <p>GPC-4.3 Possesses skills in analyzing the need for environmental protection measures based on the application of environmental standards, as well as skills in selecting and applying indicators for environmental impact assessment and forms of</p>

<b>Competence code</b>	<b>Competence descriptor</b>	<b>Competence formation indicators (within this course)</b>
		environmental control based on environmental standards;
GPC-5	Able to solve professional tasks in the fields of ecology, natural resource management, and environmental protection using information and communication technologies, including geographic information systems (GIS).	GPC -5.1 Knows the theoretical, methodological, and practical foundations of applying information technologies in environmental impact assessment; GPC -5.2 Possesses modern methods for assessing environmental information to solve theoretical and practical problems of environmental safety expertise in natural resource management, including GIS technologies; GPC -5.3 Able to select and apply algorithms for solving environmental problems, and to implement these algorithms using software tools;
GPC-6	Able to design, present, defend, and disseminate the results of one's professional activities, including research activities.	GPC -6.1 Able to use information resources, scientific, experimental, and instrumental facilities relevant to the subject of the conducted research; GPC -6.2 Able to formulate the results obtained in the course of solving research tasks; GPC -6.3 Able to identify scientific (scientific-technical) results that have practical significance
PC -2	The ability to creatively apply knowledge of fundamental and applied sections of special disciplines within the Master's program in scientific and production-technological activities.	PC-2.1 Able to study the natural, technogenic, socio-economic, demographic, and medico-biological situation, and to search for cultural heritage objects within the studied territory; PC-2.2 Able to predict possible adverse changes in the natural and technogenic environment, and to conduct a preliminary analysis of the consequences of information obtained during research; PC-2.3 Possesses skills in performing environmental analyses of objects based on chemical, microbiological, parasitological, and toxicological indicators; PC-2.4 Able to collect and analyze environmental information about the natural and technogenic environment, as well as physiographic and climatic conditions, based on materials from previous years' work.
PC-3	Possession of the fundamentals of design, expert-analytical activities, and performance of research using modern approaches and methods, equipment, and computing systems.	PC-3.1 Able to identify indicators that may have a negative impact on the environment; PC-3.2 Able to formulate recommendations and proposals for preventing and reducing adverse consequences; PC-3.3 Able to analyze environmental monitoring data and draw preliminary conclusions about the state of the object and the surrounding environment;
PC-5	The ability to develop standard environmental protection measures and to conduct an environmental impact assessment of	PC-5.1 Able to conduct an environmental impact assessment of a planned enterprise and facilities, to predict and evaluate negative consequences; PC-5.2 Able to develop standard environmental protection measures;

<b>Competence code</b>	<b>Competence descriptor</b>	<b>Competence formation indicators (within this course)</b>
	planned structures or other forms of economic activity.	PC-5.3 Possesses skills in environmental design and the preparation of special documentation at the pre-project stage of the project life cycle.

### 3. INTERNSHIP IN HIGHER EDUCATION PROGRAMME STRUCTURE

The "work experience internship" belongs to the compulsory (core) part.

Within the framework of the higher education program, students also study disciplines and/or other internships that contribute to achieving the planned learning outcomes upon completion of the "work experience internship."

*Table 3.1. The list of the higher education programme components that contribute to the achievement of the expected learning outcomes as the internship results.*

<b>Competence code</b>	<b>Competence descriptor</b>	<b>Previous courses/modules, internships*</b>	<b>Subsequent courses/modules, internships*</b>
GC-1	Able to carry out a critical analysis of problem situations based on a systems approach and to develop a strategy for action.	Methodology of Scientific Creation; Research Work;	Environmental control and MSW monitoring programs**; Physicochemical methods of waste testing**; Research Work; Work Experience Internship; Pre-Graduation Practice
GC -2	Able to manage a project at all stages of its life cycle.	Research Work;	Modern remediation technologies; Research Work; Pre-Graduation Practice;
GC -3	Able to organize and lead the work of a team, developing a team strategy to achieve the set goal.	International cooperation in the field of nature protection; Research Work;	Research Work; Pre-Graduation Practice;
GC -4	Able to apply modern communication technologies in the state language of the Russian Federation and foreign language(s) for academic and professional interaction.	Foreign language (optional); Foreign (Russian) language**; Russian Language for Foreign Students; Foreign Language in Professional Practice**; Research Work;	Foreign language (optional); Foreign (Russian) language**; Russian Language for Foreign Students; Foreign Language in Professional Practice**; Research Work; Pre-Graduation Practice;
GC -5	Able to analyze and account for cultural diversity in the process of intercultural interaction.	International cooperation in the field of nature protection; Philosophical problems of natural sciences; History of Religions in Russia; Research Work;	Research Work; Pre-Graduation Practice;

<b>Competence code</b>	<b>Competence descriptor</b>	<b>Previous courses/modules, internships*</b>	<b>Subsequent courses/modules, internships*</b>
GC -6	Able to determine and implement priorities of one's own activities and ways to improve them based on self-assessment.	Philosophical problems of natural sciences; Research Work;	Management of environmental-economic risks; Environmental control and MSW monitoring programs**; Physicochemical methods of waste testing**; Research Work; Pre-Graduation Practice;
GC -7	Able to use basic knowledge in the field of information culture.	IT in Ecology and Natural Resources Management; Research Work;	Research Work; Pre-Graduation Practice;
GPC-1	Able to use philosophical concepts and the methodology of scientific knowledge when studying various levels of organization of matter, space, and time.	Philosophical problems of natural sciences; Methodology of Scientific Creation; Research Work;	MSW Recycling and Utilization Technics; Research Work; Pre-Graduation Practice;
GPC-2	Able to use specialized and emerging branches of ecology, geoecology, and natural resource management when solving research and applied tasks in professional activities	Regional & Municipal MSW Management Systems;  Research Work;	MSW Recycling and Utilization Technics; Research Work; Pre-Graduation Practice;
GPC-3	Able to apply ecological research methods to solve research and applied tasks in professional activities.	Environmental Impact Assessment (EIA) of SWM objects; Research Work;	Environmental norms for sustainability; Research Work; Pre-Graduation Practice;
GPC-4	Able to apply regulatory legal acts in the field of ecology and natural resource management, as well as norms of professional ethics.	Modern technologies for nature protection;  Research Work;	Research Work; Pre-Graduation Practice;
GPC-5	Able to solve professional tasks in the fields of ecology, natural resource management, and environmental protection using	IT in Ecology and Natural Resources Management; Research Work;	Research Work; Pre-Graduation Practice;

<b>Competence code</b>	<b>Competence descriptor</b>	<b>Previous courses/modules, internships*</b>	<b>Subsequent courses/modules, internships*</b>
	information and communication technologies, including geographic information systems (GIS).		
PC -2	The ability to creatively apply knowledge of fundamental and applied sections of special disciplines within the Master's program in scientific and production-technological activities.	Environmental Impact Assessment (EIA) of SWM objects; Research Work;	MSW Recycling and Utilization Technics; Modern remediation technologies; Research Work; Pre-Graduation Practice;
PC-3	Possession of the fundamentals of design, expert-analytical activities, and performance of research using modern approaches and methods, equipment, and computing systems.	Regional & Municipal MSW Management Systems;  Research Work;	Management of environmental-economic risks; Environmental norms for sustainability; Research Work; Pre-Graduation Practice;
PC-5	The ability to develop standard environmental protection measures and to conduct an environmental impact assessment of planned structures or other forms of economic activity.	Research Work; Mapping and GIS-technologies in MSW Management**; Remote Sensing of MSW objects**;	Research Work; Pre-Graduation Practice;

\* To be filled in according with the competence matrix of the higher education programme.

#### **4. INTERNSHIP WORKLOAD**

1)The total workload of the internship is 15 credits (540 academic hours).

#### **5. INTERNSHIP CONTENTS**

*Table 5.1. Internship contents\**

<b>Modules</b>	<b>Contents (topics, types of practical activities)</b>	<b>Workload, academic hours</b>
Module 1. Preparatory stage:	1.1 Safety Briefing Introductory Lecture	4
Module 2. Preparatory stage at the enterprise	2.1 Safety briefing	2
	2.2 Introduction to the institution (production)	2
	2.3 Definition of job responsibilities in accordance with	4

<b>Modules</b>	<b>Contents (topics, types of practical activities)</b>	<b>Workload, academic hours</b>
	the topic of the qualification work	
Module 3. Main stage: The stage of work at the enterprise	3.1 Participation in the production activities of an institution (enterprise)	200
x	4.1 Compiling and filling out a practice diary	60
	4.2 Familiarization with scientific achievements, modern developments, and technologies in the chosen field. Processing and systematization of information (literary material, Internet resources, etc.)	150
	4.3 Collection and processing of factual material	100
Writing an internship report		9
Preparing for defence and defending the internship report		9
<b>TOTAL:</b>		<b>540</b>

\* The contents of internship through modules and types of practical activities shall be FULLY reflected in the student's internship report.

## **6. INTERNSHIP EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS**

classrooms for theoretical classes (lectures, seminars);

- a set of demonstration equipment and devices for experimental support of lectures;
- computer equipment with internet connection.

## **7. INTERNSHIP LOCATION AND TIMELINE**

The internship can be carried out at the structural divisions of RUDN University (at Moscow-based organisations, as well as those located outside Moscow.

The internship at an external organisation (outside RUDN University) is legally arranged on the grounds of an appropriate agreement, which specifies the terms, place and conditions for an internship implementation at the organisation.

The period of the internship, as a rule, corresponds to the period indicated in the training calendar of the higher education programme. However, the period of the internship can be rescheduled upon the agreement with the Department of Educational Policy and the Department for the Organization of Internship and Employment of RUDN students.

## **8. RESOURCES RECOMMENDED FOR INTERNSHIP**

*Main readings:*

1 literature provided at the enterprise

2 Evans Virginia., Evans, J. Dooley, K. Rodgers. Environmental Engineering Book 1, 2, 3/ V . Newbery : Express Publishing , 2013 - 38, 40, 41 p Textbook in English 1 ISBN 9781-4715-1611-5: 1365.10.

3 Golinska Paulina. : P. Golinska , M. Fertsch . Information Technologies in Environmental Engineering 2011 Environmental Science and Engineering, ISSN 1863-5520 Monograph, ISBN 978-3-642-19535-8. Electronic text data <http://www.springerlink.com/openurl.asp?genre=book&isbn=978-3-642-19535-8>

*Additional readings:*

Mishra, Dr. Shanti Bhushan & Alok, Dr. Shashi. (2017). HANDBOOK OF RESEARCH METHODOLOGY.

*Internet sources*

1. Electronic libraries (EL) of RUDN University and other institutions, to which university students have access on the basis of concluded agreements:

- RUDN Electronic Library System (RUDN ELS) <http://lib.rudn.ru/MegaPro/Web>
- EL "University Library Online" <http://www.biblioclub.ru>
- EL "Yurayt" <http://www.biblio-online.ru>
- EL "Student Consultant" [www.studentlibrary.ru](http://www.studentlibrary.ru)
- EL "Lan" <http://e.lanbook.com/>
- EL "Trinity Bridge"
- .....

*2. Databases and search engines:*

- electronic foundation of legal and normative-technical documentation <http://docs.cntd.ru/>
- Yandex search engine [https:// www .yandex.ru/](https://www.yandex.ru/)
- Google search engine <https://www.google.ru/>
- Scopus abstract database <http://www.elsevierscience.ru/products/scopus/>
- .....

*The training toolkit and guidelines for a student to do an internship, keep an internship diary and write an internship report\*:*

1. Safety regulations to do the internship (safety awareness briefing).
2. Machinery and principles of operation of technological production equipment used by students during their internship; process flow charts, regulations, etc. (if necessary).
3. Guidelines for keeping an internship diary and writing an internship report.

\*The training toolkit and guidelines for the internship are placed on the internship page in the university telecommunication training and information system under the set procedure.

**DEVELOPER:**

Associate Professor of the NM  
Department

**Kapralova D.O.**

---

Position

---

Signature

---

Name, Surname

**HEAD OF DEPARTMENT:**

Director of ES&PQM Department  
department

**Savenkova E.V.**

---

Position

---

Signature

---

Name, Surname

**HEAD OF PROGRAMME:**

Associate Professor of the  
NM Department

**Kapralova D.O.**

---

Position

---

Signature

---

Name, Surname