Federal State Autonomous Educational Institution for Higher Education

PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA (RUDN University)

named after Patrice Lumumba

Institute of Environmental Engineering

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

INTERNSHIP SYLLABUS

Industry practice

internship title

Industry practice

internship type

Recommended by the Didactic Council for the Education Field of:

05.04.06. Ecology and environmental Management

field of studies / speciality code and title

The student's internship is implementedwithin the professional education programme of higher education:

Environmental Engineering in Construction

higher education programme profile/specialisation title

2024 г

1. INTERNSHIP GOAL

The goal of the Internship is to consolidate and deepen the professional knowledge gained by students in the learning process. Acquisition of practical skills and competencies, as well as experience, in the following areas of professional activity:

- design, survey, research, production, marketing, consulting, economic, legal, training, expert departments, departments, bureaus, centers, companies, institutions in the field of ecology and nature management;

- general education organizations, professional educational organizations and educational organizations of higher education

2. REQUIREMENTS FOR LEARNING OUTCOMES

The internship implementation is aimed at the development of the following competences (competences in part):

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

Competence code	**Competence descriptor**	**Competence formation indicators** (within this course)
PC 2	Able to diagnose environmental problems, develop standard environmental measures and practical recommendations for ensuring sustainable development, and assess the impact of planned structures or other forms of economic activity on the environment	GC -2.1. Able to predict possible adverse changes in the natural and man-made environment, to conduct a preliminary analysis of the consequences of the information obtained during the study
		GC-2.2. Able to analyze environmental monitoring data, draw preliminary conclusions about the state of the facility and the environment
		GC-2.3. Able to assess the impact on the environment of the designed enterprise and facilities, predict and evaluate the negative consequences
GPC 4э	Able to apply regulatory legal acts and norms of professional ethics in the field of ecology and nature management	GPC4.1эOriented in the modern system of regulatory support for engineering and environmental surveys and environmental impact assessment of urban agglomerations
		GPC4.2эKnows the international practice of development and harmonization, as well as the application of environmental standards
		GPC4.3эHas the skills to analyze the need for environmental protection measures based on the application of environmental standards, the skills to select and apply indicators for environmental expertise and forms of environmental control based on environmental standards
GPC6э	Able to design, represent, protect and disseminate the results of their professional activities, including research.	GPC6.1эAble to use information resources, scientific, experimental and instrumental bases on the subject of ongoing research
		GPC6.2эAble to formulate the results obtained in the course of solving research problems
		GPC6.3эAble to identify scientific (scientific and technical) results of practical importance

PC5	Able to develop design solutions and organize design in the field of industrial and civil construction	PC5.1 Able to develop projects, design documentation in the field of industrial and civil construction
		PC5.2 Possesses the skills of conducting an examination of design documentation for engineering and survey activities
		PC5.3 Able to organize the activities of the enterprise and training of personnel in the field of industrial and civil construction
GPC4c	Able to use and develop design, administrative documentation, as well as participate in the development of regulatory legal acts in the field of the construction industry and housing and communal services	GPC 4.1cOriented in the modern system of regulatory and legal support for engineering and construction surveys
		GPC 4.2c Able to develop regulations in the field of the construction industry and housing and communal services
		GPC 4.3c Possesses practical skills in the development of design and production documentation in the field of the construction industry and housing and communal services

3. INTERNSHIP IN HIGHER EDUCATION PROGRAMME STRUCTURE

The internship refers to the core component of B2.O.02 block of the higher educational programme curriculum.

Within the higher education programme students also master other disciplines (modules) and / or internships that contribute to the achievement of the expected learning outcomes as results of the 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.

Competence code	**Competence descriptor**	**Previous courses/modules, internships***	**Subsequent courses/modules, internships***
GC1	Able to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy	Mathematical modelling Fundamentals of scientific research Educational practice	-
GC2	Able to manage a project at all stages of its life cycle	Organization and management in construction	-
GC3	Able to organize and manage the work of the team, developing a team strategy to achieve the goal.	Leadership and Team management	-
GC4	Able to apply	Mathematical modelling	-

Competence code	Competence descriptor	Previous courses/modules, internships*	Subsequent courses/modules, internships*
	modern communication technologies, including in a foreign language(s) for academic and professional interaction	Leadership and Team management Foreign language for professional communication	
GC5	Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	Leadership and Team management	-
GC6	Able to identify and implement the priorities of their own activities and ways to improve it based on self-assessment	Leadership and Team management	-
GC7	Digital technologies	Regulation System in Construction Digital technologies in Civil Engineering	-
GPC 1э	Able to use philosophical concepts and methodology of scientific knowledge in the study of various levels of organization of matter, space and time.	Fundamentals of scientific research Educational practice Sustainable development of urban areas	-
GPC 2э	Able to use special and new sections of ecology, geoecology and nature management in solving research and applied problems of	Fundamentals of scientific research Urban water management and climate change adaptation Dynamics of environmental systems	-

Competence code	Competence descriptor	Previous courses/modules, internships*	Subsequent courses/modules, internships*
	professional activity	Educational practice Regional geoecology and urban geoecology Regional and municipal waste management systems Sustainable development of urban areas	
GPC 3э	Able to apply environmental research methods to solve research and applied problems of professional activity	Urban water management and climate change adaptation Project management Urban development and environmental engineering surveys	-
GPC 4э	Able to apply regulatory legal acts and norms of professional ethics in the field of ecology and nature management	Regulation System in Construction Project management Industry practice Environmental rationing	-
GPC 5э	Able to solve the problems of professional activity in the field of ecology, nature management and nature protection using information and communication, including geoinformation technologies	Mathematical modelling Organization and management in construction Digital technologies in Civil Engineering	-
GPC 6э	Able to design, represent, protect and disseminate the results of their professional	Project management Industry practice	

Competence code	Competence descriptor	Previous courses/modules, internships*	Subsequent courses/modules, internships*
	activities, including research		
GPC 1c	Able to solve problems of professional activity based on the use of theoretical and practical foundations, the mathematical apparatus of fundamental sciences	Mathematical modelling Fundamentals of scientific research Organization and management in construction Digital technologies in Civil Engineering Theoretical foundations and design methods of pipeline systems for water supply and sanitation	-
GPC 2c	Able to analyze, critically comprehend and present information, search for scientific and technical information, acquire new knowledge, including with the help of information technology	Mathematical modelling Organization and management in construction Management of operation of water supply and sanitation systems Dynamics of environmental systems Educational practice	-
GPC 3c	Able to set and solve scientific and technical problems in the field of construction, the construction industry and housing and communal services based on knowledge of the problems of the industry and experience in solving them	Theoretical foundations and design methods of pipeline systems for water supply and sanitation Educational practice	-

Competence code	Competence descriptor	Previous courses/modules, internships*	Subsequent courses/modules, internships*
GPC 4c	Able to use and develop design, administrative documentation, as well as participate in the development of regulatory legal acts in the field of the construction industry and housing and communal services	Regulation System in Construction Industry practice	-
GPC 5c	Able to conduct and organize design and survey work in the field of construction and housing and communal services, carry out technical expertise of projects and supervision of their compliance	Digital technologies in Civil Engineering Regional geoecology and urban geoecology	-
GPC 6c	Able to carry out research of objects and processes in the field of construction and housing and communal services	Fundamentals of scientific research	-
GPC 7c	Able to manage an organization operating in the construction industry and housing and communal services, organize and optimize its production activities	Leadership and Team management Sustainable development of urban areas	-
PC 1	Able to conduct an examination of design solutions for industrial and	Organization and management in construction	-

Competence code	Competence descriptor	Previous courses/modules, internships*	Subsequent courses/modules, internships*
	civil construction projects, incl. and in the field of rational nature management	Project management Management of operation of water supply and sanitation systems Life cycle analysis of cjnstruction object Hydrological Modelling Modeling of water supply and wastewater disposal systems	
PC 2	Able to diagnose environmental problems, develop standard environmental measures and practical recommendations for ensuring sustainable development, and assess the impact of planned structures or other forms of economic activity on the environment	Urban water management and climate change adaptation Assessments of water bodies environment of urban areas Urban Ecosystems Environmental control and monitoring of urban environment Educational practice Industry practice Blue-green urban infrastructure Green areas and protected areas in the city Regional geoecology and urban geoecology Urban development and environmental engineering surveys Sustainable development of urban areas	-
PC 3	Able to carry out and organize	Fundamentals of scientific research	-

Competence code	Competence descriptor	Previous courses/modules, internships*	Subsequent courses/modules, internships*
	scientific research of objects of industrial and civil construction, incl. in the field of environmental management	Theoretical foundations and design methods of pipeline systems for water supply and sanitation Project management Social adaptation of persons with disabilities in the conditions of professional activity Life cycle analysis of cjnstruction object Blue-green urban infrastructure Green areas and protected areas in the city Regional geoecology and urban geoecology Urban development and environmental engineering surveys	
PC 4	Able to develop design solutions and measures to ensure the safety of industrial and civil construction projects	Theoretical foundations and design methods of pipeline systems for water supply and sanitation Project management Regional and municipal waste management systems Environmental rationing	-
PC 5	Able to develop design solutions and organize design in the field of industrial and civil construction	Organization and management in construction Theoretical foundations and design methods of pipeline systems for water supply and sanitation	-

Competence code	Competence descriptor	Previous courses/modules, internships*	Subsequent courses/modules, internships*
		Management of operation of water supply and sanitation systems Natural water conditioning systems Industry practice Social adaptation of persons with disabilities in the conditions of professional activity Life cycle analysis of cjnstruction object Modeling of water supply and wastewater disposal systems Hydrological Modelling	

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

4. INTERNSHIP WORKLOAD

The total workload of the internship is 6credits (216 academic hours).

5. INTERNSHIP CONTENTS

*Table 5.1. Internship contents**

Modules	Contents (topics, types of practical activities)	Workload, academic hours
Module 1.Organizational and preparatory	Getting an internship assignment from a supervisor	2
	Instruction on labor protection and fire safety	2
	Familiarization with the conditions of internship	2
	Familiarization with job responsibilities at the place of internship	2
	Acquaintance with the enterprise, organization	6
Module 2.Basic Independent work, incl. under the guidance of leaders	Bibliographic stage: collection, processing and systematization of literary material	30
	Writing a literature review	10
	Experimental research stage: performance	60

Modules	Contents (topics, types of practical activities)	Workload, academic hours
from the faculty and organization	of production tasks, observations, measurements, sampling.	
	Processing and analysis of results	60
	Compilation of graphic and cartographic material	30
Writing an internship report		6
Preparing for defence and defending the internship report		6
TOTAL:		**216**

* 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

The infrastructure and technical support necessary for the internship implementation include:laboratory equipment for determining pollution, transport for field research, cartographic material, satellite images, laboratory equipment for compression and shear testing of soils, field analyzers of air and soil pollution, computers with professional software, special equipment for various types of work in the field of ecology and nature management , depending on the profile of the organization, computer, databases, professional software

7. INTERNSHIP LOCATION AND TIMELINE

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. Исследование природных экосистем. Самостоятельные работы для летней полевой практики. Учебно-методическое пособие для студентов экологических специальностей. / Алейникова А. М., Ванисова Е. А., Васильева Е. Ю., Горбунов С. С., Жмылёв П. Ю., Жмылёва А. П., Стомахина Е. Д., Уланская Ю. В. – М.: Издательство РУДН, 2015

2. Станис Е.В. Дневник производственной (преддипломной, научно-исследовательской, научно-практической, научно-педагогической) практики. Издательство РУДН, 2014. –10 С.

3. СтанисЕ.В.Положения и программы по производственной и научно-исследовательской практикам по направлению 022000 - «Экология и природопользование» [Текст] - / Станис Е.В. - М.: 2012.

4. Станис Е.В., Макарова М.Г. Методические рекомендации по организации и проведению научно-исследовательской работы в магистратуре по направлению 022000 «Экология и природопользование» - М.: Издательство РУДН, 2011.

Additional readings:

Selected according to the subject of research work by the student in the course of bibliographic research.

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
- 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/
- Google search engine https://www.google.ru/
- Scopus abstract databasehttp://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.

9. ASSESSMENT TOOLKIT AND GRADING SYSTEM* FOR EVALUATION OF STUDENTS' COMPETENCES LEVEL AS INTERNSHIP RESULTS

The assessment toolkit and the grading system* to evaluate the level of competences (competences in part)formation as the internship results are specified in the Appendix to the internship syllabus.

* The assessment toolkit and the grading system are formed on the basis of the requirements of the relevant local normative act of RUDN University (regulations / order).