Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
NAMED AFTER PATRICE LUMUMBA (RUDN University)

Agrarian and Technological Institute
educational division (faculty/institute/academy) as higher education programme developer

INTERNSHIP SYLLABUS

Undergraduate practice
internship title

Undergraduate practice
internship title

Recommended by the Didactic Council for the Education Field of:

35.04.09 Landscape architecture

Management and design of urban green infrastructure

field of studies / speciality code and title

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

Landscape architecture

(name (profile/specialization) of the EP HE)

1. INTERNSHIP GOAL(s)

The goal **of the «Undergraduate practice»** is to prepare the student for independent research work, the result of which is writing and successful defense of the final qualifying work, securing existing and acquiring new knowledge and skills that form the competences provided of RUDN University.

2. REQUIREMENTS FOR LEARNING OUTCOMES

The **«Undergraduate practice»** is aimed at the formation of the following competencies among students:

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

Competence code	Competence descriptor	Competence formation indicators (within this course)
GC-1	Student is able to search, critically analyze problem situations based on a systematic approach, and develop a strategy for action	GC-1.1 student is able to apply systematization to solve tasks; GC-1.2 Student is able to search and analyze information;
GC-2	Student is able to manage the project at all stages of it life cycle	GC-2.1 Student is able manage the project at all stages GC-2.2 Student is able plan and analyze the project at all stages
GC -3	Student is able to organize and manage the work of the team, developing ateam strategy to achieve the goal	GC-3.1 Student is able to organize team work on the project; GC-3.2 student is able to interact with the executive authorities to coordinate allstages of design;
GC -4	Student is able to apply modern communication technologies in the state language of the Russian Federation and foreign language(s) for academic and professional interaction	GC4.1 Student is able to prepare all the necessary documentation for the project in Russian and a foreign language; GC-4.2 Student is able to communicate on the project in Russian and a foreign language;
GC-5	Student is able to analyze and take into account the diversity of cultures in the process of intercultural interaction	GC-5.1 Student is able to understand the peculiarities of the social organization of society, the specifics of the mentality and worldview of the cultures of the West and East; GC-5.2 Student is able to overcome the cultural barrier, perceiving cross-cultural differences;
GC-6	Student is able to determine and implement the priorities of his own activities and ways to improve it based on self-assessment	GC-6.1 "Student is able to plan his life activities for the period of study in an educational organization"; GC6.2 Student is able to determine thetasks of self-development and professional growth, distribute them for long-medium- and short-term with justification of their

		relevance and determination of the necessary resources;
GC-7	Student is able to apply a systematic approach in the field of information culture.	GC-7.1 Student is able systematically analyze the state of the project in the information field GC-7.2 Student is able work within the information field to promote the project
GPC-1	Student is able to analyze modern problems at the factory and production, solve complex (non-standard) tasks in professional activity;	GPC-1.1 Student is capable of solving complex (non-standard) tasks in professional activity; GPC-1.2 Student is able to analyze the current problems of the leg and production;
GPC-2	Student is able to transfer professional knowledge using modern pedagogical techniques;	GPC-2.1 Student is able to transfer professional knowledge; GPC-2.2 Student is able to transfer professional knowledge using information technology;
GPC-3	Student is able to develop and implement new effective technologies in professional activities;	GPC-3.1 Student is able to implement new effective technologies in professional activity; GPC-3.2 Student is able to develop new effective technologies in professional activity;
GPC-4	Student is able to conduct scientific research, analyze the results and prepare accounting documents;	GPC-4.1 Student is able to conduct scientific research; GPC-4.2 Student is able to prepare accounting documentation;
GPC-5	Student is able to carry out a feasibility study of projects in professional activity;	GPC-5.1 Student is capable of carrying out economic justification of projects; GPC-5.2 Student is able to carry out a feasibility study of projects;
GPC-6	Student is able to manage teams and organize production processes.	GPC-6.1 Ability to organize production processes; GPC-6.2 Ability to manage a team;
PC-1	Ability to design of technological processes for engineering preparation of the territory, construction and maintenance of landscape architecture objects	PC-1.1 Ability to manage the construction and maintenance of landscape architecture objects PC-1.2 Ability to design of technological processes for engineering preparation ofthe territory
PC-2	Ability to evaluate the effectiveness of the use of materials, equipment, technological processes at landscape architecture objects	PC-2.1 Student is able to assess the efficiency of equipment use PC-2.2 Student is able to evaluate the effectiveness of the use of technologies and materials
PC-3	Ability to assess the impact of measures for the rational use and management of landscapes, taking into account the improvement of the quality and safety of the human habitat	PC-3.1 Student is able to organize sustainable management of the facility PC-3.2 Student is able to monitor the condition of the facility

PC-4	Ability to implement measures for external improvement and gardening of territories to create favorable sanitary and hygienic conditions, increase the level of comfort of a person's stay in the urban environment, its general aesthetic enrichment	PC-4.1 Student is able to assess the environmental state of the design object PC-4.2 Student is able to create a project for sustainable development of the territory
PC-5	Ability to development and implementation of a system of measures for the conservation of plantations in the interests of ensuring the right of every citizen to a favorable environment	PC-5.1 Student is able to make decisions on carrying out activities to preserve green spaces in the city PC-5.2 Student is able to analyze the state of tree plantations
PC-6	Ability to organizing work on urban monitoring and inventory at landscape architecture sites, compiling a cadastre of green spaces	PC-6.1 Student is able to carry out certification of green spaces at design facilities PC-6.2 Student is able to conduct engineering and environmental surveys at the facility
PC-9	Ability to organizing and carrying out all types of work on objects of landscape architecture	PC-9.1 Student is able to find contractors to carry out project work PC-9.2 Student is able to organize the work of the team
UC-7.1	Student is able to search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems;	UC-7.1.1 Student is able to apply algorithms to effectively evaluate the data obtained to solve the tasks; UC-7.1.2 Student is able to use open and closed sources of information for data collection and analysis;
UC-7.2	Student is able to evaluate information, its reliability, and build logical conclusions based on incoming information and data.	UC-7.2.1 Student is able to verify the accuracy of the information received; UC-7.2.2 Student is able to logically assess the reliability of the information received.

3. INTERNSHIP IN HIGHER EDUCATION PROGRAMME STRUCTURE

The **«Undergraduate practice** belongs to the part formed by the participants of educational relations.

Within the framework of the practice, students also master other disciplines and/or practices that contribute to achieve the planned results of mastering the **«Undergraduate practice».**

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*
GC-1	Student is able to search, critically analyze problem situations based on a systematic approach, and develop a strategy for action	Data analysis and statistics, Landscape planning and sustainable development, Phytopathology and Plant Protection, Landscape engineering and naturebased solution, Green infrastructure urban climate and carbon neutrality, Principles of remote sensing and modeling, Advances in environmental monitoring, Scientific writing skills, Research planning, Scientific research, Internship in research laboratories, enterprise, public administrations and other organizations, Scientific research and thesis preparation (in English)	-
GC-2	Student is able to manage the project at all stages of it life cycle	Landscape planning and sustainable development	-
GC -3	Student is able to organize and manage the work of the team, developing a team strategy to achieve the goal	Data analysis and statistics, Landscape planning and sustainable development, Phytopathology and Plant Protection, Landscape engineering and naturebased solution, Green infrastructure urban climate and carbon neutrality, Principles of remote sensing and modeling, Advances in environmental monitoring, Scientific writing skills, Urban ecology, Internship in research laboratories, enterprise, public administrations and other organizations, Scientific research and thesis preparation (in English)	-

GC -4	Student is able to apply modern communication technologies in the state language of the Russian Federation and foreign language(s) for academic and professional interaction	Data analysis and statistics, Landscape planning and sustainable development, Foreign language (Russian language), Phytopathology and Plant Protection, Green infrastructure urban climate and carbon neutrality, Research planning, Scientific research, Internship in research laboratories, enterprise, public administrations and other organizations, Scientific research and thesis preparation (in English)	-
GC-5	Student is able to analyze and take into account the diversity of cultures in the process of intercultural interaction	Data analysis and statistics, Landscape planning and sustainable development, Phytopathology and Plant Protection, Landscape engineering and naturebased solution, Green infrastructure urban climate and carbon neutrality, Principles of remote sensing and modeling, Advances in environmental monitoring, Scientific writing skills, Research planning, Scientific research, Internship in research laboratories, enterprise, public administrations and other organizations, Scientific research and thesis preparation (in English)	-
GC-6	Student is able to determine and implement the priorities of his own activities and ways to improve it based on self-assessment	Data analysis and statistics, Landscape planning and sustainable development, Phytopathology and Plant Protection, Landscape engineering and naturebased solution, Green infrastructure urban climate and carbon neutrality, Principles of remote sensing and	-

		modeling, Advances in environmental monitoring, Urban ecology, Scientific writing skills, Research planning, Scientific research, Internship in research laboratories, enterprise, public administrations and other organizations, Scientific research and thesis preparation (in English)	
GC-7	Student is able to apply a systematic approach in the field of information culture.	Data analysis and statistics, Internship in research laboratories, enterprise, public administrations and other organisations	-
GPC-1	Student is able to analyze modern problems at the factory and production, solve complex (non-standard) tasks in professional activity;	Data analysis and statistics, Landscape planning and sustainable development, Phytopathology and Plant Protection, Landscape engineering and naturebased solution, Principles of remote sensing and modeling, Scientific writing skills, Research planning, Scientific research, Internship in research laboratories, enterprise, public administrations and other organizations, Scientific research and thesis preparation (in English)	-
GPC-2	Student is able to transfer professional knowledge using modern pedagogical techniques;	Data analysis and statistics, Landscape planning and sustainable development, Phytopathology and Plant Protection, Green infrastructure urban climate and carbon neutrality, Principles of remote sensing and modeling, Scientific writing skills, Research planning, Scientific research, Internship in research laboratories, enterprise, public administrations and other	-

		organizations, Scientific research and thesis preparation (in English)	
GPC-3	Student is able to develop and implement new effective technologies in professional activities;	Data analysis and statistics, Landscape planning and sustainable development, Phytopathology and Plant Protection, Landscape engineering and naturebased solution, Urban ecology, Scientific writing skills, Research planning, Scientific research, Internship in research laboratories, enterprise, public administrations and other organizations, Scientific research and thesis preparation (in English)	-
GPC-4	Student is able to conduct scientific research, analyze the results and prepare accounting documents;	Data analysis and statistics, Landscape planning and sustainable development, Phytopathology and Plant Protection, Landscape engineering and naturebased solution, Scientific writing skills, Research planning, Scientific research, Internship in research laboratories, enterprise, public administrations and other organizations, Scientific research and thesis preparation (in English)	-
GPC-5	Student is able to carry out a feasibility study of projects in professional activity;	Data analysis and statistics, Landscape planning and sustainable development, Phytopathology and Plant Protection, Landscape engineering and naturebased solution, Scientific writing skills, Research planning, Scientific research, Internship in research laboratories, enterprise, public administrations and other organizations, Scientific	-

		research and thesis preparation (in English)	
GPC-6	Student is able to manage teams and organize production processes.	Data analysis and statistics, Landscape planning and sustainable development, Scientific writing skills, Research planning, Scientific research, Internship in research laboratories, enterprise, public administrations and other organizations, Scientific research and thesis preparation (in English)	-
PC-1	Ability to design of technological processes for engineering preparation of the territory, construction and maintenance of landscape architecture objects	Landscape planning and sustainable development	-
PC-2	Ability to evaluate the effectiveness of the use of materials, equipment, technological processes at landscape architecture objects	Urban ecology	-
PC-3	Ability to assess the impact of measures for the rational use and management of landscapes, taking into account the improvement of the quality and safety of the human habitat	Phytopathology and Plant Protection	-
PC-4	Ability to implement measures for external improvement and gardening of territories to create favorable sanitary and hygienic conditions, increase the level of comfort of a person’s stay in the urban environment, its general aesthetic enrichment	Landscape planning and sustainable development, Urban ecology	-

PC-5	Ability to development and implementation of a system of measures for the conservation of plantations in the interests of ensuring the right of every citizen to a favorable environment	Landscape planning and sustainable development	-
PC-6	Ability to organizing work on urban monitoring and inventory at landscape architecture sites, compiling a cadastre of green spaces	Research planning , Scientific research	-
PC-9	Ability to organizing and carrying out all types of work on objects of landscape architecture	Landscape planning and sustainable development, Internship in research laboratories, enterprise, public administrations and other organisations	-
GC-7.1	Student is able to search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems;	Data analysis and statistics, Landscape planning and sustainable development, Internship in research laboratories, enterprise, public administrations and other organizations, Scientific research and thesis preparation (in English)	-
GC-7.2	Student is able toevaluate information, its reliability, and build logical conclusions based on incoming information and data.	Data analysis and statistics, Landscape planning and sustainable development, Internship in research laboratories, enterprise, public administrations and other organizations, Scientific research and thesis preparation (in English)	-

* - filled in in accordance with the matrix of competencies and SC EP HE

4. INTERNSHIP WORKLOAD

The total workload of the practice **«Undergraduate practice»** is 9 ECTS (324 a.h.).

5. INTERNSHIP CONTENTS

*Table 5.1. Internship contents**

Modules	**Contents (topics, types of practical activities)**	**Workloa d, academi c hours**
Module 1**.** Preparatory stage, familiarization of students with general information about the objects and methods of research, work plan, safety instructions, organizational issues	Class work	**8**
Module 1**.** Literature survey and review to support the methodological part of the further work	Analytical studies	**150**
Module 1**.** Data collection in field (lab) conditions following the methodology	Analytical studies	**100**
Module 1**.** Data processing, analysis and visualization	Analytical studies	**48**
Preparation of a practice report		**9**
Preparation for defense and defense of the practice report		**9**
	TOTAL	**324**

* 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

Material and technical support of internship will be provided by usage all the necessary field and lab equipment, computer classes, specialized audience and library funds of RUDN and enterprises the internship is based on QGIS, R, MS Office (Word, Excel, Power Point), access to the web-libraries Scopus and Web of Science and other professional software depending on the

practical tasks. The program of educational practice, developed by the Department of Landscape Design and Sustainable Ecosystems of the Agrarian-Technological Institute of the RUDN University, methodical recommendations on the organization and conducting practices for graduate students of the Landscape Architecture direction, Teodoronsky VS, Fatiyev MM Construction and operation of urban landscaping // study guide. Publishing house: M. Forum.- 2011. 237s

7. INTERNSHIP LOCATION AND TIMELINE

«Undergraduate practice» can be carried out both in the structural divisions of RUDN University or in organizations of Moscow (stationary), and at bases located outside of Moscow.

Conducting an internship on the basis of an external organization (outside the RUDN University) is carried out on the basis of an appropriate agreement, which specifies the terms, place and conditions for conducting an internship in the base organization.

The terms of the practice correspond to the period specified in the calendar training schedule of the EP HE. The terms of the practice can be adjusted upon agreement with the Department of Educational Policy and the Department for the organization of internships and employment of students at RUDN University.

8. RESOURCES RECOMMENDED FOR INTERNSHIP

Main readings:

1. Vasenev V.I., Epikhina A.S. Urban ecology. RUDN University. 2017
2. Alberti M. Advances in Urban Ecology: Integrating Humans and Ecological Processes in Urban Ecosystems Springer; 2008 366 p.
3. R.T.T. Forman. Urban Ecology: Science of Cities Cambridge University Press 2014. 474 p.
4. J. Niemela,J. H. Breuste, G.Guntenspergen. Urban Ecology: Patterns, Processes, and Applications. Oxford University Press; Reprint edition. 2012. 392 p.
5. Denisov V.V.., Kurbatova A.S., Denisova I.A.., Bondarenko V.L., Gracheva V.A., Gutenev V.V., Nagnibeda B.A. «Ecology of a city». M.: Rostov on Don: 2008-832 p.(in Russia).

Additional readings:

1. Dolgikh, A.V., Aleksandrovskii, A.L., 2010. Soils and cultural layers in velikii Novgorod. Eurasian Soil Science, 43, 477-48.
2. Ilina, I.N. (Eds.), 2000. Environmental atlas of the Moscow city. ABF. Moscow (in Russian)
3. Kaye, J.P., McCulley, R.L., Burkez, I.C., 2005. Carbon fluxes, nitrogen cycling, and soil microbial communities in adjacent urban, native and agricultural ecosystems. Global Change Biology 11, 575-587.
4. Lorenz, K., Lal, R., 2009. Biogeochemical C and N cycles in urban soils. Environment International 35, 1-8.
5. Pickett, S.T.A., Cadenasso, M.L., Grove, J.M., Boone, C.G., Groffman, P.M., Irwin, E., Kaushal, S.S., Marshall, V., McGrath, B.P., Nilon, C.H., Pouyat, R.V., Szlavecz, K., Troy, A., Warren, P., 2011. Urban ecological systems: scientific foundations and a decade of progress.

Journal of Environmental Management 92, 331-362
6. Scalenghe, R., Marsan, F.A. The anthropogenic sealing of soil in urban areas, 2009. Landscape and urban planning 90, 1-10. .
7. Vrscaj, B., Poggio, L., Marsan, F., 2008. A method for soil environmental quality evaluation for management and planning in urban areas. Landscape and Urban Planning 88, 81-94

Internet sources

http://www.mvarchicad.com http://artlantis.ru/ http://www.autodesk.ru. http://www.adobe.com. www.archibase.net.http://www.artshare.ru. http://archicad.ru/. http://www.archicad-edu.info. http://www.archi-tec.ru/. http://www.arhitekto.ru/. http://arkhitektura.ru/. http://www.archibase.net. www.gardener.ru/. http://wwwjandshaft.ru/

Resources of the Internet information and telecommunication network:

1 . RUDN University e-library and other e-libraries, to which university students have access on the basis of concluded agreements:

- RUDN electronic library system - http://lib.rudn.ru/MegaPro/Web
- University Library Online http://www.biblioclub.ru
- Yurite electronic library system http://www.biblio-online.ru
- Student's Consultant electronic library system www.studentlibrary.ru
- Lan e-library http://eJanbook.com/
- Trinity Bridge e-library

2 .*Databases and search engines:*

- electronic fund of legal and normative-technical documentation http://docs.cntd.ru/
- Yandex https://www.yandex.ru/
- Google https://www.google.ru/
- NCBI: https://p.360pubmed.com/pubmed/
- Abstract database SCOPUS http://www.elsevierscience.ru/products/scopus/
- RUDN Bulletin: access mode from the RUDN territory and remotely http://journals.rudn.ru/
- Elibrary.ru scientific library: access via RUDN IP-addresses at: http://www.elibrary.ru/defaultx.asp
- ScienceDirect (ESD), FreedomCollection, Cell Press of Elsevier Publishing House. There is remote access to the database, access via RUDN IP-addresses (or remotely via individual login and password).
- Google Scholar is a free search engine for full-text scientific publications of all formats

and disciplines. Indexes the full texts of scientific publications. Access mode: https://scholar.google.ru/

*Educational and methodological materials for the practice, filling out a diary and preparing a report on practice *:*

1. Safety rules for the passage of **«Undergraduate practice»** (initial briefing).
2. The general arrangement and principle of operation of technological production equipment used by students during their internship; flow charts and regulations, etc. (if necessary).
3. Guidelines for filling in the diary by students and preparing a practice report.

* - all teaching materials for the practice are placed in accordance with the current procedure on the practice page in the **TUIS System**!

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

Evaluation materials and a point-rating system* for assessing the level of competence formation (part of competencies) based on the results of mastering the «Undergraduate practice» are presented in the Appendix to this Work Program of the practice

* 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).

DEVELOPERS:

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HEAD OF THE EDUCATIONAL DEPARTMENT

Director of the Department of Landscape Design and Sustainable Ecosystems — E.A. Dovletyarova

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