

Аграрно-технологический институт

Принято Ученым советом Аграрно-технологического института
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Утверждаю

Проректор по образовательной деятельности

Ю.Н. Эбзеева
2021 г.



**Основная профессиональная образовательная программа
высшего образования**

Направление подготовки (специальность)

35.04.09

Ландшафтная архитектура

в соответствии с перечнем, утвержденным приказом Минобрнауки России от 12.09.2013г. № 1061.

Программа разработана в соответствии с требованиями ОС ВО РУДН, утвержденным приказом от 21 мая 2021 г. № 371 «Об утверждении актуализированных образовательных стандартов высшего образования, самостоятельно устанавливаемых Российским университетом дружбы народов, по уровням подготовки бакалавриата, специалитета и магистратуры».

Квалификация (степень) выпускника: **Магистр**

Специализация: **Менеджмент и дизайн городской зеленой инфраструктуры**

Форма обучения

очная

Срок освоения программы

в очной форме – 2 года

Сведения об особенностях реализации основной профессиональной образовательной программы Реализуется на английском языке.

Согласовано:

Руководитель программы:

Председатель МССН

Согласовано:

Директор института

Довлетярова Э.А.

Довлетярова Э.А.

Довлетярова Э.А.

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Information on the basic educational program (BEP)

1.1. The purpose (mission) of the basic educational program (BEP).

The main professional educational program of higher education direction of training 35.04.09 "Landscape Architecture" (qualification (degree) "Master"), implemented by the Federal State Autonomous Institution of Higher Education "Russian University of Peoples' Friendship" is a system of documents designed in accordance with the requirements of OS VO RUDN / GEF VO.

The purpose of this basic vocational educational program is higher of education in the direction of training 35.04.09 "Landscape Architecture" (qualification (degree) "Master") is the development of personal qualities in students, as well as the formation of general cultural (universal), general professional and professional competencies in accordance with the requirements of the OS VO RUDN / GEF VO in this area preparation. The goal of the double-degree program in English, Management, and Design of Urban Green Infrastructure implemented jointly with the University of Tushia (Italy), is to train qualified personnel in the design, implementation, and management of urban green infrastructure. The disciplines of the program provide theoretical knowledge and practical skills in the field of landscape design and architecture of cities, as well as in the area of environmental monitoring, assessment, standardization and modeling of urban ecosystems and their components that meet Russian and international educational standards and are adequate to modern market requirements. Particular attention is paid to the development of advanced technologies of rational land use and green building, allowing to significantly improve the environmental quality of the urban environment and the comfort of living of citizens.

1.2 Basic information.

Program code and name: 35.04.09 Landscape architecture (qualification (degree) "Master")

Profile "Management and design of urban green infrastructure"

Form of implementation: full-time

Sphere of the master's professional activity

The sphere of professional activity includes research, design and management of sustainable and environmentally friendly urban green infrastructure, providing both ecological and aesthetic functions in urban environment.

Object of the master's professional activity

Objects of the master's professional activity include different components of urban green infrastructure: green zones, parks, urban lawns, ornamental plants, green walls and roofs, nurseries of ornamental plants, design projects, interactive technologies including geoinformatic systems (GIS) and decision-support systems (DSS) in management and design of urban green infrastructure.

Types and goals of the master's professional activity

- construction and exploitation of urban green areas;

- managing development, keeping and protection of urban vegetation;
- ecological projecting and management of urban recreational areas (parks, forest parks, public gardens, natural areas)
- ecological engineering of urban ecosystems' components;
- development and implementation of green construction technologies;
- managing and recycling wastes of urban construction and exploitation of green areas;
- projecting and implementing energy saving systems and zero emission systems in urban greenery
- environmental monitoring of urban ecosystems' quality (atmospheric air, surface run-off, vegetation, soils);
- environmental assessment, prediction and modeling;
- standardization and ecological control of environmental parameters;
- environmental expertise and impact assessment;
- education and research in urban ecology and landscape design in Russia and worldwide

1.3 Features of the implementation of the basic educational program (BEP).

The program is implemented on the basis of the Peoples' Friendship University of Russia, Russia (1 year) and the Tuscia University, Italy, (2 year)

The program is implemented in English

1.4 Labor market demand for graduates of this basic educational program (BEP).

A graduate may hold the following positions:

- in leading organizations working in the field of landscape architecture and design;
- forestry;
- authorities for the protection of specially protected natural territories;
- nurseries and botanical gardens; design institutes and workshops;
- construction organizations;
- management of landscape gardening;
- committees on city planning and protection of monuments, improvement and road economy, urban planning and architecture.

Approximate level of remuneration of graduates without work experience:

- Landscape designer from 60 000 ruble.
- Assistant landscape architect from 30 000 ruble
- Gardener from 40 000 ruble
- Gardener-grower from 30 000 ruble
- Florist in the flower shop from 25 000 ruble
- Foreman (foreman) from 40 000 ruble

Graduates apply their knowledge, practical skills and abilities internship abroad (Italy, Holland, Austria, Germany). They practice in large design institutes and workshops.

Masters - graduates of the program “Management and design of urban green infrastructure” can develop a further career in one of the following areas: 1) continuing education and research in postgraduate studies at Russian, European and American universities with a PhD degree; 2) work in international organizations and institutions (FAO UNESCO, IASA, WIMEK, ISRIC, etc.); 3) work in Russian-Italian companies and corporations focused on the international market (Barilla, EuroChem and others). The list of potential employers in Moscow, with whom working contacts have been developed, includes administrative organizations (the Department of Environmental Management and Environmental Protection of the City of Moscow, Rosprirodnadzor), production companies and design organizations (Moszelenstroy CJSC, GUP Mosproekt), scientific and applied laboratories (Laboratory of Agroecological monitoring, modeling and forecasting of ecosystems, Mosomcomonitoring) and educational institutions (RSAU-Moscow Agricultural Academy named after KA Timiryazev, RUDN and others).

1.5 Requirements for applicants.

Admission is conducted on a full-time basis (paid places) according to the results of entrance examinations. For admission to the program, an interdisciplinary exam is taken orally (2 sets of questions: on urban ecology and landscape design) and an interview in English. To enter the program, you must have: The document of the state sample of higher education with the appropriate annex to it, confirming your qualifications: bachelor, specialist or master.

1.5. Characteristics of the professional activities of the graduate of OP:

1.5.1 Sphere of the master’s professional activity

The sphere of professional activity includes research, design and management of sustainable and environmentally friendly urban green infrastructure, providing both ecological and aesthetic functions in urban environment.

1.5.2 Object of the master’s professional activity

Objects of the master’s professional activity include different components of urban green infrastructure: green zones, parks, urban lawns, ornamental plants, green walls and roofs, nurseries of ornamental plants, design projects, interactive technologies including geoinformatic systems (GIS) and decision-support systems (DSS) in management and design of urban green infrastructure.

1.5.3 Types and goals of the master’s professional activity

- construction and exploitation of urban green areas;
- managing development, keeping and protection of urban vegetation;
- ecological projecting and management of urban recreational areas (parks, forest parks, public gardens, natural areas)

- ecological engineering of urban ecosystems' components;
- development and implementation of green construction technologies;
- managing and recycling wastes of urban construction and exploitation of green areas;
- projecting and implementing energy saving systems and zero emission systems in urban greenery
- environmental monitoring of urban ecosystems' quality (atmospheric air, surface run-off, vegetation, soils);
- environmental assessment, prediction and modeling;
- standardization and ecological control of environmental parameters;
- environmental expertise and impact assessment;
- education and research in urban ecology and landscape design in Russia and worldwide

1.6. Requirements for the results of BEP's mastering

As the result of the program "Management and design of urban green infrastructure" graduate master should have the following universal competencies (UC):

- Able to search, critical analysis problem situations based on a systematic approach, develop an action strategy (UC -1);
- Able to manage a project at all stages of its life cycle (UC -2);
- Able to organize and manage the work of the team, developing a team strategy to achieve the goal (UC -3).
- Able to apply modern communication technologies in the state language of the Russian Federation and foreign language (s) for academic and professional interaction (UC - 4).
- Able to analyze and take into account the diversity of cultures in the process of intercultural interaction (UC - 5).
- Able to determine and implement the priorities of their own activities and ways to improve them on the basis of self-esteem (UC -6).
- Capable of:
 - 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;
 - evaluate information, its reliability, build logical conclusions based on incoming information and data. (UC-7).

A graduate who has mastered the master's program must have the following general professional competencies (GPC):

- Able to analyze modern problems of science and production, solve complex (non-standard) tasks in professional activities (GPC-1);

- able to transfer professional knowledge with using modern pedagogical techniques (GPC -2);
- Able to develop and implement new effective technology in a professional activities (GPC -3).
- Able to conduct research, analyze the results and prepare reporting documents (GPC -4).
- Able to carry out a feasibility study of projects in professional activities (GPC -5).
- Able to manage teams and organize production processes (GPC -6).
- Able to master the tools for working with large arrays of structured and unstructured information, to use modern digital methods of processing, analysis, interpretation and visualization of data in order to solve the assigned tasks of professional and research activities in the field of landscape architecture (GPC -7).

A graduate who has mastered the master's program must have professional competencies (PC) corresponding to the type (types) of professional activity for which (which) Master's program is oriented:

production and technological activity:

- readiness for the design of technological processes for the engineering preparation of the territory, construction and maintenance of landscape architecture objects (PC-1);
- the ability to assess the effectiveness of the use of materials, equipment, technological processes at landscape architecture objects (PC-2);
- the ability to assess the impact of measures for the rational use and management of landscapes, taking into account improving the quality and safety of the human environment (PC-3);
- the ability to implement measures for external landscaping and landscaping to create favorable sanitary and hygienic conditions, to increase the level of comfort of a person's stay in an urban environment, its general aesthetic enrichment (PC-4);
- the ability to develop and implement a system of measures to preserve plantings in the interests of ensuring the right of every citizen to a favorable environment (PC-5);
- readiness to organize urban monitoring and inventory work on landscape architecture objects, compiling a green space inventory (PC-6);

organizational and management activities:

- ability to organize and conduct all types of work on landscape architecture objects (PC-9);
- readiness to manage landscape architecture objects in the field of their functional use, protection and protection (PC-10);

research activities:

- readiness to obtain new knowledge and conduct applied research in the field of landscape architecture (PC-16);
- ability to develop work plans and research programs in the field of landscape architecture, the ability to organize the collection, processing, analysis and
- systematization of scientific and technical information on the research topic, the choice of methods and tools for solving problems (PC-17);
- ability to prepare scientific and technical reports, reviews, publications based on the results of research in the field of landscape architecture (PC-18);
- design activity:*
- the ability to carry out the planning organization of open spaces, the design of the external environment, the design of landscape architecture objects, to develop restoration and reconstruction projects of territories of cultural heritage objects (PC-21);
- willingness to participate in the project activities of organizations, to work in a team of specialists related to sustainable development of territories at the stage of territorial planning and preparation of master plans for settlements and urban agglomerations (PC-22);
- willingness to develop (based on current standards) methodological and regulatory documents for the design of landscape architecture objects (PC-24);

The following disciplines are taught:

- Data analysis and statistics
- International regulation in city planning and environmental protection
- Urban ecology
- Landscape design, architecture and city-planning
- Phytopathology and Plant Protection
- Scientific writing skills
- Introduction in scientific research
- Foreign language (Business English)
- Foreign language (Technical English)

Legal support of educational activities

1.7 To organize the educational process, the following regulatory documents are used:

- 1) Federal Law of December 29, 2012 No. 273-Φ3 “On Education in the Russian Federation”.
- 2) Federal Law of December 31, 2014 No. 500-Φ3 "On Amending Certain Legislative Acts of the Russian Federation".

- 3) Regulation on the licensing of educational activities (approved by the Decree of the Government of the Russian Federation of October 28, 2013 N 966).
- 4) Decree of the Government of the Russian Federation of November 18, 2013 N 1039 "Regulation on state accreditation of educational activities."
- 5) Order of the Ministry of Education and Science of the Russian Federation No. 1061 dated 09/12/2013 "On approval of the lists of specialties and areas of higher education training"
- 6) Federal State Standard (GEF) in the direction of training (specialty) in RUDN
- 7) The Charter of the Federal State Autonomous Educational Institution of Higher Education of the Peoples' Friendship University of Russia, approved by order of the Ministry of Education and Science of Russia dated 07.25.2014. No. 790
- 8) License of the Federal State Autonomous Educational Institution of Higher Education of the People's Friendship University of Russia for educational activities (with appendices) Series 90L01 No. 0008186 dated 12/23/2014, Reg. No. 1204
- 9) Certificate of state accreditation of the Federal State Autonomous Educational Institution of Higher Education RUDN University Series 90A01 No. 0001268 dated February 9, 2015, reg. No. 1190.
- 10) The order of organization and implementation of educational activities for educational programs of higher education - undergraduate programs, specialty programs, master's programs at RUDN University - Order of the Rector No. 460 of 04/04/2014.
- 11) The regulation on the development and design of the main professional educational program of higher education and the educational and methodical complex of discipline, order of the rector dated October 17, 2017 No. 831
- 12) Regulation on the accelerated development of educational programs of higher education - undergraduate programs, specialty programs, master programs (accelerated learning procedure) - Order of the Rector No. 204 of 04/13/2015.
- 13) The procedure and criteria for offsetting disciplines, modules, practices and recognition of credits of labor input received by a student at RUDN University in a foreign educational organization based on the results of initiative academic mobility - Order of the Rector No. 226 of 04/17/2015.
- 14) Regulation on the current monitoring of academic performance and intermediate certification of students order of the rector of 03/12/2018. Number 169
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- 15) The Regulation on the BRS assesses the quality of development of basic educational programs, approved by order of the rector dated 06.06.2013 No. 564.
- 16) The Regulation on the practice of students in RUDN University Order of the rector dated 04/04/2016 No. 404.
- 17) The regulation of the organization of practices for students with disabilities and the order of the rector dated 06/07/2016. No. 521

- 18) The procedure for filing and considering appeals based on the results of monitoring the development of knowledge by RUDN students - Order of the Rector No. 138 of 02.24.2011.
- 19) The model regulation on the department of RUDN University, the model regulation on the dean's office of the RUDN University faculty - Order of the Rector No. 1013 dated 02.12.2013.
- 20) Rules of organization and conduct of competitive selection of applicants for the posts of faculty of RUDN University - Order of the Rector No. 271 of 03/29/2013.
- 21) "On Qualification Requirements for PPS RUDN University Positions", "On Approving the Form and Procedure for Using the Teacher's Individual Work Plan" - Order of the Rector No. 633 of 03.07.2012
- 22) On approval of an employment contract with the teaching staff in the format of an effective contract concluded between the University and the teacher and the procedure for its implementation - Order of the Rector No. 296 of 05/05/2014
- 23) On the procedure for drawing up agreements on teaching activities on an hourly basis - Order of the Rector No. 127 of 03/10/2015, Order of the Rector No. 140 of 03/13/2015.
- 24) The time standards for calculating the volume of academic work performed by the university faculty - Order of the Rector No. 242 of 04/28/2015
- 25) The Regulation on the organization of educational activities for the main professional educational programs using network forms for the implementation of educational programs, order of the rector of 07.23.2018. Number 600
- 26) Regulation on the final qualification work of the RUDN graduate - Order of the Rector No. 856 dated 12/08/2008 *, amendments to Appendix No. 4 to the Order of the Rector No. 167 dated 03/05/2012
- 27) The procedure for conducting the final state certification of students in higher education programs - undergraduate programs, specialty programs and master's programs at the Peoples' Friendship University of Russia (new edition), rector's order of 10/13/2016. No. 790.
- 28) On introducing amendments to the Procedure for conducting final state certification of students in higher education programs - undergraduate programs, specialty programs and master's programs at the Peoples' Friendship University of Russia (new edition), rector's order dated 03/12/2018. Number 173
changes Appendix No. 3 to the Order of the Rector No. 167 of 03/05/2012
- 29) The order of the test part of the state exam at the RUDN University - Order of the Rector No. 884 of 11/22/2006 *
- 30) Regulation of computer testing in the Mentor system of RUDN University - Order of the Rector No. 578 of September 5, 2008 *
- 31) The regulation on the placement of WRC in the WRC RUDN module with access via the Internet, order of the rector dated April 23, 2014 No. 272.

32) The regulation on the procedure for automated verification of term papers, graduation works, theses, master's theses to the percentage of the degree of originality in the system "Anti-plagiarism. RUDN University", order of the rector of April 14, 2014 No. 243.

33) The regulation on the use of distance learning technologies for conducting the state final certification of students studying at the RUDN University, according to the online form of training, as well as joint programs with partner universities (double diploma programs) - Order of the Rector No. 761 of 11/27/2014.

34) Regulation "On Methodological Advice in Specialties and Directions of the RUDN University" - Meeting of the Academic Council of the RUDN University of 11.19.2007

35) Normative documentation developed by the faculty / institute.

* Regulatory documents and teaching materials on the organization of the educational process at RUDN University. Issue 2. - M.: RUDN University, 2010. -- 210 p.

36) The procedure for the formation of personal files is the order of the rector of June 13, 2017. No. 509

37). The regulation on the procedure for offsetting the results of mastering by students of disciplines (modules), practice, additional educational programs in other organizations engaged in educational activities by the order of the rector of January 14, 2019 Number 16

38). Rules for the use of online courses in the implementation of the main educational programs of RUDN University Order of the Rector of 11.23.2018 No. 938

39). Regulation on the implementation of educational programs for students with high educational results, order of the rector of 04/28/2017. Number 346

40) The regulation on the organization of training in the basic educational programs of disabled people and persons with disabilities at the RUDN University, order of the rector of 05.23.2017. No. 417

41) Provisions on the procedure and conditions for passing the intermediate and (or) state final certification by external certification of the rector dated 03/12/2018. Number 174

42) The regulation on the organization of training in physical education at the Federal State Autonomous Educational Institution of Higher Education "Peoples' Friendship University of Russia" Order of the Rector of September 13, 2017. Number 729

43) On making amendments to the Procedure for conducting final state certification of students in higher education programs - undergraduate programs, specialty programs and master's programs at the Peoples' Friendship University of Russia (new edition); Rector's order dated 12.03.2018. Number 173.

1.8 Competency matrix

		Universal competencies (UC):						
Name of disciplines (modules) in accordance with the curriculum		UC -1: Able to search, critical analysis problem situations based on a systematic approach, develop an action strategy	UC -2: Able to manage a project at all stages of its life cycle	UC -3: Able to organize and manage the work of the team, developing a team strategy to achieve the goal	UC -4: Able to apply modern communication technologies in the state language of the Russian Federation and foreign language (s) for academic and professional interaction	UC -5: Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	UC -6: Able to determine and implement the priorities of their own activities and ways to improve them on the basis of self-esteem	UC -7: Capable of: 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
Block 1	Basic part							
	Data analysis and statistics	+		+	+	+	+	+
	International regulation in city planning and environmental	+		+	+	+	+	
	Urban ecology	+		+	+	+	+	
	Landscape design, architecture and city-planning	+	+	+	+	+	+	+

Block 1	Variable part							
	Phytotechnologies to protect water and soil in urban areas	+		+		+	+	
	Trees and plants to improve air quality of urban areas	+		+		+	+	
	Phytopathology and Plant Protection	+		+	+	+	+	
	Urban hydrology	+		+		+	+	
	Urban forestry	+		+	+	+	+	
	Principles of remote sensing and	+		+		+	+	
	Soil pollution and monitoring	+		+		+	+	
	Research support for sustainable			+			+	
	Scientific writing skills	+		+		+	+	
	Introduction in scientific research							
	Foreign language (Business)				+			
	Foreign language (Technical)				+			
Block 2	Variable part							
	Scientific research and thesis	+		+	+	+	+	
	Internship in research laboratories, enterprise, public	+		+	+	+	+	+
	Research practice							

		General Professional Competences (GPC)						
	Name of disciplines (modules) in accordance with the curriculum	GPC-1: Able to analyze modern problems of science and production, solve complex (non-standard) tasks in professional activities	GPC -2: able to transfer professional knowledge with using modern pedagogical techniques	GPC -3: Able to develop and implement new effective technology in a professional activities	GPC -4: Able to conduct research, analyze the results and prepare reporting documents	GPC -5: Able to carry out a feasibility study of projects in professional activities	GPC -6: Able to manage teams and organize production processes	OPK-7. Able to master the tools for working with large arrays of structured and unstructured information, to use modern digital methods of processing, analysis, interpretation and visualization of data in order to solve
Block 1	Basic part							
	Data analysis and statistics	+	+	+	+	+	+	+
	International regulation in city planning and environmental	+	+	+	+	+	+	
	Urban ecology	+	+	+	+	+	+	
	Landscape design, architecture and city-planning	+	+	+	+	+	+	+
Block 1	Variable part							
	Phytotechnologies to protect water and soil in urban areas							

	Trees and plants to improve air quality of urban areas							
	Phytopathology and Plant							
	Urban hydrology							
	Urban forestry							
	Principles of remote sensing and							
	Soil pollution and monitoring							
	Research support for sustainable							
Block 2	Scientific writing skills							
	Introduction in scientific research							
	Foreign language (Business							
	Foreign language (Technical							
	Variable part							
	Scientific research and thesis							
	Internship in research laboratories, enterprise, public							
	Research practice							

		Professional competence				
Name of disciplines (modules) in accordance with the curriculum		PC-1: readiness for the design of technological processes for the engineering preparation of the territory, construction and maintenance of landscape architecture objects	PC-2: the ability to assess the effectiveness of the use of materials, equipment, technological processes at landscape architecture objects	PC-3: the ability to assess the impact of measures for the rational use and management of landscapes, taking into account improving the quality and safety of the human environment	PC-4: the ability to implement measures for external landscaping and landscaping to create favorable sanitary and hygienic conditions, to increase the level of comfort of a person's stay in an urban environment, its general aesthetic enrichment	PC-5: the ability to develop and implement a system of measures to preserve plantings in the interests of ensuring the right of every citizen to a favorable environment
Block 1	Basic part					
	Data analysis and statistics					
	International regulation in city planning and environmental protection					
	Urban ecology					
	Landscape design, architecture and city-planning	+			+	+
Block 1	Variable part					

	Phytotechnologies to protect water and soil in urban areas		+	+	+	+
	Trees and plants to improve air quality of urban areas		+	+	+	+
	Phytopathology and Plant Protection			+		
	Urban hydrology					
	Urban forestry					
	Principles of remote sensing and modeling					
	Soil pollution and monitoring					
	Research support for sustainable forest		+		+	
Block 2	Scientific writing skills					
	Introduction in scientific research					
	Foreign language (Business English)					
	Foreign language (Technical English)					
	Variable part					
	Scientific research and thesis preparation (in English)					
	Internship in research laboratories, enterprise, public administrations and other					
	Research practice					

		Professional competence				
	Name of disciplines (modules) in accordance with the curriculum	PC-6: readiness to organize urban monitoring and inventory work on landscape architecture objects, compiling a green space inventory	PC-9: ability to organize and conduct all types of work on landscape architecture objects	PC-10: readiness to manage landscape architecture objects in the field of their functional use, protection and protection	PC-16: readiness to obtain new knowledge and conduct applied research in the field of landscape architecture	PC-17: ability to develop work plans and research programs in the field of landscape architecture, the ability to organize the collection, processing, analysis and systematization of scientific and technical information on the research topic, the choice of methods and tools for solving problems
Block 1	Basic part					
	Data analysis and statistics					+
	International regulation in city planning and environmental protection					+
	Urban ecology				+	
	Landscape design, architecture and city-planning		+	+	+	
Block 1	Variable part					

	Phytotechnologies to protect water and soil in urban areas	+		+		
	Trees and plants to improve air quality of urban areas	+		+		
	Phytopathology and Plant Protection			+		
	Urban hydrology			+		
	Urban forestry			+		
	Principles of remote sensing and modeling					+
	Soil pollution and monitoring					
	Research support for sustainable forest					
Block 2	Scientific writing skills					
	Introduction in scientific research					
	Foreign language (Business English)					
	Foreign language (Technical English)					
	Variable part					
	Scientific research and thesis preparation (in English)					
	Internship in research laboratories, enterprise, public administrations and other		+			
	Research practice					

		Professional competence			
Name of disciplines (modules) in accordance with the curriculum		PC-18: ability to prepare scientific and technical reports, reviews, publications based on the results of research in the field of landscape architecture	PC-21: the ability to carry out the planning organization of open spaces, the design of the external environment, the design of landscape architecture objects, to develop restoration and reconstruction projects of territories of cultural heritage objects	PC-22: willingness to participate in the project activities of organizations, to work in a team of specialists related to sustainable development of territories at the stage of territorial planning and preparation of master plans for settlements and urban agglomerations	PC-24: willingness to develop (based on current standards) methodological and regulatory documents for the design of landscape architecture objects
Block 1	Basic part				
	Data analysis and statistics				
	International regulation in city planning and environmental protection				+
	Urban ecology				+
	Landscape design, architecture and city-planning		+	+	
Block 1	Variable part				

	Phytotechnologies to protect water and soil in urban areas				+
	Trees and plants to improve air quality of urban areas				+
	Phytopathology and Plant Protection				
	Urban hydrology				
	Urban forestry				
	Principles of remote sensing and modeling				
	Soil pollution and monitoring				+
	Research support for sustainable forest	+			
Block 2	Scientific writing skills	+			
	Introduction in scientific research	+			
	Foreign language (Business English)				
	Foreign language (Technical English)				
	Variable part				
	Scientific research and thesis preparation (in English)				
	Internship in research laboratories, enterprise, public administrations and other	+			
	Research practice	+			

Agrarian and technological institute
SUMMARY academic disciplines

Educational program

35.04.09 "Landscape architecture"

Specialization: "Management and design of urban green infrastructure"

Name of the discipline	Data analysis and statistics
Volume discipline	8 ECTS (288 hours.)
Course Description	
The name of the partition (the) discipline	Summary of sections (the) discipline
Methodology of scientific research	Stages of science development. Evolutionary and revolutionary models of science development. Scientific observation Experiment
Collecting and organization of research data	Measuring scales: ordinal, integral and ratio scales. Ordinal, quantitative and qualitative features Continuous and discrete variables Average of distribution. Features of average. Sample. Representativeness of sample
Introduction into descriptive statistics	Mean, mode, median Range, variance, coefficient of variance, stand deviation Scatter plot Box plot
Statistical hypothesis	Confident interval. P-level. Null and alternative hypothesis, step-by-step solutions. Estimation of confident interval.
T-test	One-sample T test Paired T-test Independent two-sample T-test Critical values for t-distribution
Correlation	Correlation Pearson correlation coefficients Spearmen correlation coefficients
Simple linear regression	Relationships between variables Residuals Regression equations, regression coefficients
Multiple regression	-Fitting regression models - Determination coefficient - Power and accuracy of regression models

Agrarian and technological institute
SUMMARY academic disciplines

Educational program

35.04.09 "Landscape architecture"

Specialization: "Management and design of urban green infrastructure"

Name of discipline	International regulation in city planning and environmental protection
The volume of discipline	6 ECTS (216 hours.)
Course Description	
Name of sections (themes) of the discipline	Summary of sections (themes) of the discipline:
Introduction to the course. Basic terms: city-planning, urbanizations, urban ecosystems, environmental protection. History and actuality of the problem	City-planning and environmental protection as global and national trends. Connections of environmental issues with other areas in the development of cities Modern and ancient cities. Urbanization as a processes of city expansion and urban development Nature urbanization as transformation of natural landscapes into urban infrastructure Functional and formal approaches to define the term «city»
Participation of international organizations in city-planning and environmental protection. International legal framework	Main conventions, protocols, documents, agreements. International organizations in city-planning and environmental protection: possible projects to increase the value of international organizations.
Structure of regulation of city-planning (national, regional, municipal) in Russia	Current realities and trends in the development of socio-economic processes of urbanization; Opportunities, resources and limitations of urban development proper as a form of technical support for urbanization processes; Problems and perspectives of housing and communal services and the construction complex, directly related to urban development in the processes of horizontal technological cooperation.
City-planning in EU: goals, problems and principles of policy	Urban development; Urban dimension of cohesion policy; What is integrated sustainable urban development?; Objectives for 2014-2020; The Urban Agenda for the EU; Regional Policy
Environmental protection in Russia: goals, problems and principles of policy	Wildlife Deforestation and Logging Energy Nuclear energy Pollution Water pollution Air pollution Other forms of pollution Soil erosion - State initiatives on increasing policy.

<p>Environmental protection in EU: goals, problems and principles of policy</p>	<p>Environmental law; Green policy: Safeguarding the health and wellbeing of people living in the EU; Global challenges;</p>
<p>International cooperation of Russia and EU in city-planning and environmental protection</p>	<p>Forms of international cooperation in the field of city-planning and environmental protection are: - international organizations for the protection of nature; - international treaties, agreements, conventions; - State initiatives on international cooperation.</p>
<p>Global risks in city-planning and environmental protection.</p>	<p>Disaster risk reduction. Possible ways to avoid the risks.</p>

Name of the discipline	Urban ecology	
Volume discipline	6 ECTS (216 hours.)	
Course Description		
The name of the partition discipline	Summary of sections discipline:	
Urbanization. Urban ecosystems. Urban landscape	Urban	<ul style="list-style-type: none"> – Urban ecology – ecology of a city – A city as an object of urban ecology – Cities of past and present – Urbanization processes – Models of spatial organization in settlements
Urban geology		<ul style="list-style-type: none"> – Anthropogenic effects on the lithosphere – Chemical pollution of sediments – Industrial and domestic wastes – Waste classification and management
Urban hydrology		<ul style="list-style-type: none"> – Anthropogenic effects on hydrosphere – Physical influence of water bodies – Main pollution sources – Contamination with heavy metals and oil products – Salinization,
Urban atmosphere		<ul style="list-style-type: none"> – Air quality management – Air quality standards – Standards of human influence on atmosphere – Threshold limit values
Urban climate.		<ul style="list-style-type: none"> – Heat island effect – Urban canyon effect – Urban microclimate
Urban infrastructure	green	<ul style="list-style-type: none"> – Anthropogenic influence on biosphere – Technogenic influence on urban vegetation – Alteration of environmental factors, influencing urban vegetation – Regulations to create and maintain green areas
Urban soils		<ul style="list-style-type: none"> – Антропогенное воздействие на – Anthropogenic influence on soils – Soil contaminants – Threshold limit values in soils – Urban soils (SUITMAs)

Name of the discipline	Landscape design, architecture and urban planning
Volume discipline	WE 8 (288 hours)
Course Description	
The name of the partition (the) discipline	Summary of sections (the) discipline
Energy and resource saving technologies in the SPLA. Ecological houses	Each period has its own requirements for housing and urban space. But houses are built per operation for decades or centuries. Therefore, during their construction, it is desirable to take into account not only modern criteria and assessments, but also the requirements of the forecasted future. Therefore, one of the tasks of modern landscape architecture is the creation of comfortable and sustainable spaces using the most modern technologies in the field of energy and resource saving.
European eco-villages. Architectural and landscape environment	European eco-villages are residential development, designed and implemented "with consideration of future needs", aimed at restoring natural resources, using environmentally friendly technologies in everyday life, giving the natural environment more than taking. Since the 60s of the last century, such a concept has been developed in European countries, and from the 90s began the gradual application of this practice in Russia.
Surface design	A "tablet" use a set of the latest technological solutions "in the language" of modern landscape design, so that a fragment of the architectural environment will find its identity (recognition). Depending on the location of the selected tablet fragment in relation to other components of the landscape, first of all, depending on the flow of moving pedestrians falling on this fragment of the urban space or their placement for the purpose of short-term recreation, the decision is made to use certain modern techniques in surface treatment.
Green design	In addition to decorative enrichment of the environment, vegetation in the city also performs a number of ecological and environment-forming functions. An integral part of modern landscape architecture is the creation of a balance between aesthetics and comfort of movement, this is mainly reflected in the Green and Gray concept, in which the greening of the city has many solutions (roof gardens, modules, vertical gardening, etc.)
Water design	As well as vegetation, water performs important environment-forming functions, especially in the hot summer period. The use of plastic properties of water when creating water devices in urban open spaces is one of the main directions of modern landscape architecture. A design of coastlines and open water is a good solution to the problem of rational use of space.
Light design of urban open spaces	The aesthetics and safety of the urban area in the evening are some of the hallmarks of a modern and sustainable urban environment. Light design currently has many areas, but all of them are united by increasing the comfort and decorative qualities of the territory, as well as the possibility of using light in combination with the other components.
Modern sculpture	Modern sculpture reveals the aesthetic and psychological potential of urban open spaces. The use of the concept of "spirit of the place", as well as modern materials and technologies, does not divide space, but creates an interconnection between the natural and artificial components of the landscape.

City for human	The city for a person is based on the formation of values of eco-territory and eco-housing in the system of modern human values. In addition, the city for a person is filled with unique and interesting spaces that create spaces for safe movement and recreation, including psychological, for residents.
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Agrarian and technological institute
SUMMARY academic disciplines

Educational program

35.04.09 "Landscape architecture"

Specialization: "Management and design of urban green infrastructure"

Name of the discipline	«Phytopathology and Plant Protection»
Volume discipline	6 ECTS (216 hour.)
Course Description	
The name of the partition discipline	Summary of sections discipline:
Infectious and non-infectious plant diseases. Main symptoms of plant diseases	The concept of plant disease. Abiotic factors causing noncommunicable diseases. Characteristics of phytopathogens, symptoms.
The main classes of phytopathogens. Features of the life cycle. Diagnostic methods	Viruses, viroids, bacteria, fungi as causative agents of plant diseases. Features of pathogenesis, preservation and spread of infection. Diagnosis of virosis, bacterioses and mycoses
Diseases of ornamental trees, shrubs, lawn grasses, flower crops	Bacterial, fungal and viral diseases. Characteristic symptoms of mycoses, viroses and bacterioses on ornamental cultures
Plant protection methods.	Physical, mechanical and agrotechnical methods of protection. The concept of organic farming
Biological method of protection. Quarantine	Predatory and parasitic invertebrates. Microbiological preparations. Advantages and disadvantages of biometod
Chemical protection method Integrated Plant Protection	The main classes of pesticides. Fungicides, insecticides and herbicides, mechanism of action. Features of the use of chemical plant protection products

Developers:

Associate Professor
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E.N. Pakina

**Agrarian and technological institute
SUMMARY academic disciplines**

Educational program

35.04.09 "Landscape architecture"

Specialization: "Management and design of urban green infrastructure"

Name of the discipline	Introduction in scientific research
Volume discipline	6 ECTS (216hours)
Course Description	
The name of the partition (the) discipline	Summary of sections (the) discipline
Scientific world view	The concept of a world view. Myths as historical methods of explaining natural phenomena. Problems of the formation of European science. Socio-historical background of science. Attempts to define science. The main historical stages of the development of science: antiquity, the Middle Ages, the Renaissance. Galileo Galilei and the foundations of physics. Isaac Newton and classical mechanics. Towards a non-classical world view. Einstein's theory of relativity. Post-non-classical science: non-stationarity of the universe, synergetics, noosphere. Science as a social institution.
Scientific development	Cumulative and conventional models of scientific development. Scientific revolutions and the revolutionary model of the development of science. Model of science evolution and scientific paradigms. Scientific research as a way to obtain information about the environment. Principles for the organization of scientific research. The object and subject of scientific research. Factors affecting the scientific research. Types of research.
Methodology of scientific research	Observation as a type of research work. Principles of observation. Selection and justification of the choice of objects of observation. Selection and justification of the choice of the number of objects observation. Instant, periodic and long-term observation. Interpretation and analysis of observation results. Up-to-date methods of observation: scanning, remote sensing. Examples of scientific observations from recent environmental research: observation of greenhouse gas emissions; observation of the generative structure of the population, observation of the dynamics of habitats of rare species, etc.
Experimental set-up	Experiment as a type of research work. Principles of the experiment. The goals and objectives of the experiment.

Data sampling	Sample. Representativeness of the sample. Randomization. Ways to obtain a representative sample. Mechanical selection. Tables of random numbers. Random number generator. Layer selection
Basic statistics	Grouping and distribution series. Grouping of quality and ordinal features. Classes of quantitative traits. Intervals
Introduction to data analysis	Regression. Regression equation. Regression analysis. Linear and nonlinear regression. Elementary model of linear regression. Model results and remainder. Regression coefficients.
Basic skills in scientific writing	Publication as a way of writing scientific information. Motivations in the preparation of scientific publications. The interests of the author and reader of scientific publications are the similarities and differences. Types of publications, structure of publications.

Name of the discipline	Scientific Writing Skills
Volume discipline	6 ECTS (216 hours)
Course Description	
The name of the partition (the) discipline	Summary of sections (the) discipline
Introduction to scientific methodology	Model of science evolution and scientific paradigms. Scientific research as a way to obtain information about the environment. Principles for the organization of scientific research. Object and subject of scientific research
Types of scientific work	Observation as a type of research work. Principles of observation. Selection and justification of the choice of objects of observation. Selection and justification of the choice of the number of objects observation. Instant, periodic and long-term observation. Interpretation and analysis of observation results.
Writing a professional CV	The structure of a professional CV: education, knowledge and skills, speaking at conferences, publications, experience of participation in scientific grants. Strengths and weaknesses in CV preparation. CV presentation.
Introduction to scientific reading and scientific metrics	Sources of scientific literature. Search engines. Electronic Libraries. Referential databases. Types of scientific journals. Scientometric indices. Impact factor.
Data sampling	Sample. Representativeness of the sample. Randomization. Ways to obtain a representative sample. Mechanical selection. Tables of random numbers. Random number generator. Layer selection
Preparation materials for conferences	Types of conferences. Conference proceedings. Theses Poster report. Presentation.
Scientific writing skills	Publication as a way of writing scientific information. Motivations in the preparation of scientific publications. The interests of the author and reader of scientific publications are the similarities and differences. Types of written scientific works: Structure of written scientific work.
Scientific fund rising	Science funds. Investment. Commercialization of scientific and technical results in the Russian Federation, CIS countries, EU countries, the USA. Research funds. Grant Application Procedure

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PROGRAM
STATE CERTIFICATE CERTIFICATION

Direction of training: 35.04.09 “Landscape Architecture”

Specialization: «Management and Design of Urban Green Infrastructure»

Graduate qualification: Master

2020 г.

1. General provisions

- 1.1. Responsibility and procedure for preparing and conducting state final tests at PFUR, as well as the list, order and deadlines for passing documents required for carrying out state final attestation between structural units, determines the procedure for conducting final state attestation of students.
- 1.2. The state final certification in the direction of 35.04.09 "Landscape Architecture" includes preparation for passing and passing the state exam (if the organization included the state exam in the state final certification) in the direction of "Modern landscape architecture and design of the urban environment" and the protection of final qualifying work in the form oral presentation of the WRC, followed by oral responses to questions from members of the SEC in accordance with the University Regulations on the WRC.
- 1.3. The results of any type of certification tests included in the state final certification are determined by the marks "excellent", "good", "satisfactory", "unsatisfactory".

2 Aims and objectives of the state final certification

- 2.1. The purpose of the state final certification is to determine compliance the results of mastering students of basic educational programs of the requirements of the educational standards.

The state exam is held in 2 parts: test and written. 60 minutes are allotted for the test, 150 minutes are given for the examination.

The exam tickets include 4 questions. Evaluated the completeness and correctness of the answer, literacy presentation. The maximum score for each question is 20. The test part is estimated at 20 points. The maximum number of points for the exam - 100.

- 2.2. The tasks of the state final certification are:

- Checking the quality of personal education of basic natural science laws and phenomena, necessary in professional activities;
- Determining the level of theoretical and practical readiness of a graduate to performance of professional tasks in accordance with the qualifications obtained;
- Establishing the degree of the individual's striving for self-development, enhancing his qualifications and skills;
- verification of the formation of sustainable motivation for professional activities in accordance with the types of professional education provided by the educational standard;

- Verification of the ability to find organizational and managerial decisions in non-standard situations and willingness to take responsibility for them;
- Ensuring the integration of education and scientific and technical activities, increasing the effectiveness of the use of scientific and technological achievements, the reform of scientific spheres and stimulation of innovation activity;
- Ensuring the quality of training in accordance with the requirements of the educational standard.

3. State Exam Program

3.1. The state exam is held in 2 parts: test and written. 60 minutes are allotted for the test, 150 minutes are given for the examination.

The exam tickets include 4 questions. Evaluated the completeness and correctness of the answer, literacy presentation. The maximum score for each question is 20. The test part is estimated at 20 points. The maximum number of points for the exam - 100.

3.2. As part of the state exam, the degree of mastering is checked graduates of the following competencies:

universal competencies (UC):

- Able to search, critical analysis problem situations based on a systematic approach, develop an action strategy (UC -1);
- Able to manage a project at all stages of its life cycle (UC -2);
- Able to organize and manage the work of the team, developing a team strategy to achieve the goal (UC -3).
- Able to apply modern communication technologies in the state language of the Russian Federation and foreign language (s) for academic and professional interaction (UC - 4).
- Able to analyze and take into account the diversity of cultures in the process of intercultural interaction (UC - 5).
- Able to determine and implement the priorities of their own activities and ways to improve them on the basis of self-esteem (UC -6).

professional competencies (GPC):

- Able to analyze modern problems of science and production, solve complex (non-standard) tasks in professional activities (GPC-1);
- able to transfer professional knowledge with using modern pedagogical techniques (GPC -2);
- Able to develop and implement new effective technology in a professional activities (GPC -3).

- Able to conduct research, analyze the results and prepare reporting documents (GPC -4).
- Able to carry out a feasibility study of projects in professional activities (GPC -5).
- Able to manage teams and organize production processes (GPC -6).
-

professional competencies (PC):

production and technological activity:

- readiness for the design of technological processes for the engineering preparation of the territory, construction and maintenance of landscape architecture objects (PC-1);
- the ability to assess the effectiveness of the use of materials, equipment, technological processes at landscape architecture objects (PC-2);
- the ability to assess the impact of measures for the rational use and management of landscapes, taking into account improving the quality and safety of the human environment (PC-3);
- the ability to implement measures for external landscaping and landscaping to create favorable sanitary and hygienic conditions, to increase the level of comfort of a person's stay in an urban environment, its general aesthetic enrichment (PC-4);
- the ability to develop and implement a system of measures to preserve plantings in the interests of ensuring the right of every citizen to a favorable environment (PC-5);
- readiness to organize urban monitoring and inventory work on landscape architecture objects, compiling a green space inventory (PC-6);

organizational and management activities:

- ability to organize and conduct all types of work on landscape architecture objects (PC-9);
- readiness to manage landscape architecture objects in the field of their functional use, protection and protection (PC-10);

research activities:

- readiness to obtain new knowledge and conduct applied research in the field of landscape architecture (PC-16);
- ability to develop work plans and research programs in the field of landscape architecture, the ability to organize the collection, processing, analysis and systematization of scientific and technical information on the research topic, the choice of methods and tools for solving problems (PC-17);
- ability to prepare scientific and technical reports, reviews, publications based on the results of research in the field of landscape architecture (PC-18);

design activity:

- the ability to carry out the planning organization of open spaces, the design of the external environment, the design of landscape architecture objects, to develop restoration and reconstruction projects of territories of cultural heritage objects (PC-21);
- willingness to participate in the project activities of organizations, to work in a team of specialists related to sustainable development of territories at the stage of territorial planning and preparation of master plans for settlements and urban agglomerations (PC-22);
- willingness to develop (based on current standards) methodological and regulatory documents for the design of landscape architecture objects (PC-24);

3.3. Exam volume:

The size of the state exam is 3 credits. (108 hours)

15 tickets for 3 questions

4 test options with 30 questions

3.4. Contents of the state exam:

1. A city: definitions, categories and features?
2. Air pollution
3. Contaminants of the atmosphere and sources of contamination (pollution)
4. Heat island effect: reasons and consequences
5. Hydrosphere and global water distribution
6. Urban areas structure and functional zoning?
7. Urban ecology: problems and objects, goals and methods.
8. Urban ecosystems and urban landscapes?
9. Water use and water consumption
10. Anthropogenic impacts on the atmosphere.
11. Explain the term "plot"? What are the uses of a plot design? How do you understand the term "structure of the lines on the surface of the earth"? How do you understand the term "visual code"?
12. How do you explain the term "technology green and grey"?
13. How do you understand the term - "ecological architecture"? Name the modern eco-technologies? What is the structure of ecological construction in Europe and Scandinavia?
14. How do you understand the term "land without relief"? What are its characteristics? What are the tools of landscape with artificial relief? List them
15. List the features using of plant material in the landscape composition? What are the modern ways of using variegated forms in the urban open space?

16. Name the use of relief situation? How do you understand the term "sloping situation"? What are its characteristics? What are the tools of landscape work with the natural topography? List them.
17. What are the materials for the design of landscape model?
18. What are the objectives of the plot? What is the role of the form "wave" in the landscape design of urban space? How do you understand the term "bionic form"? How do you understand the term "history of the place"?
19. What are the tools of landscape design?
20. What do you mean by the term "layers of plant material"? What are the components of the medium volume-spatial structure of the 1st level? From what means consists of the volume-spatial structure of 2-nd level? From what means consists of the volume-spatial structure of 3-d level?
21. Bacterial diseases: Symptoms, contamination, possible losses, identification
22. Cultural control. Preparation of plant material, plant residues, fertilization, plant density
23. Fungal diseases: Symptoms, contamination, possible losses, identification
24. Main symptoms on different plant groups. Possible losses from diseases. Direct and non direct losses.
25. Methods of plant protection. Host plant resistance. Cultural, physical, chemical, biological means of plant diseases, pests and weed control. Quarantine for pathogens management.
26. Noninfectious diseases. Environment conditions/ causing plant diseases
27. Physical method of plant protection. Cooling and freezing. Drying and desiccants. Modified atmospheres
28. Seeds and planting stock contamination. Identification. Possible losses.
29. Viral diseases: Symptoms, contamination, possible losses, identification
30. Viruses, viroids, bacteria, fungi. Pathogenesis in different plants.

4. Recommended reading:

a) main literature:

1. M.I. Gerasimova, M.N. Strogonov, N.V. Mozharova, T.V. Prokofiev "Anthropogenic soil" - M: 2003 - 268 p.
2. Denisov V.V., Kurbatov A.S., Denisova I.A., Bondarenko V.L., Grachev V.A., Gutenev V.V., Nagnibeda B.A. "Ecology of the city". M.: Rostov n / a: 2008-832 p.
3. A.S. Kurbatov, V.N. Bashkin, N.S. Kasimov "Ecology of the city". - M.: 2004 - 624 p.
4. Kurbatov V.Ya. A General History of Landscape Art. Gardens and Parks of the World.-M., 2007.
5. Ozhegov S.S. History of landscape architecture. -M., 2004.

6. Sokolskaya OB Landscape art. Formation and development: Textbook. 2nd ed., Pererab. and add. - SPb .: "Lan" publishing house, 2013.-552c.
7. Theodoronsky V.S. Landscape gardening. Textbook for universities. M. MGUL 2003.-335s.
8. Theodoronsky V.S., Sabo E.D., Frolova V.A. Construction and operation of landscape architecture objects. M. Izd., "ACADEMY" - 2008 348c.
9. Fatiev M.M., Theodoronsky V.S. Construction and operation of urban landscaping. Tutorial. M .: FORUM, 2011. - 240 p.
10. Fatiev M.M. Construction of urban landscaping facilities. Textbook. Publishing Forum; SIC INFRA-M Moscow. 2012.- 208 p.
11. Ecology - Textbook. manual / Ed. S.A. Bogolyubov. M: Knowledge, 1997.
12. Ecology, environmental protection, environmental safety / Ed. IN AND. Danilov-Danilyana. M .: Publishing house MNEPU, 1997

b) additional literature:

1. Vladimirov V.V., Davidyants G.N., Rastorguev OS, Shafran V.L. Engineering training and improvement of urban areas. M. Izd., "Architecture" - 2004. 236s.
2. Urban planning. Planning and development of urban and rural settlements. SNIIP 2.07.01-89 * Moscow 2005 56c.
3. The rules and regulations for the design of integrated improvement in the territory of the city of Moscow. MGSN 1.02-02. Moscow 2002- 71s.
4. Rules for the creation, maintenance and protection of green spaces in Moscow. Moscow 2002 Ed. Department of environmental management.
5. Urban planning. Planning and development of urban and rural settlements. SNIIP 2.07.01-89 * Moscow 2005 SP 11-102-97 Engineering and environmental surveys for construction.
6. Rules for the creation, maintenance and protection of green spaces in Moscow. The government of Moscow. Department of nature management and environmental protection. Moscow 2002. 140s
7. Rules and regulations for the design of integrated improvement in the territory of the city of Moscow. MGSN 1.02-02. The government of Moscow. 2002.71s.
8. Norms and rules of planning and development of the city of Moscow MGSN 1.01-99. Moscow 2000g-113s.
9. GOST 21.508-85. "General plans of enterprises, structures and housing and civil facilities. Working drawings".
10. GOST 17 2.1.03-84. Nature Conservation Atmosphere Terms and definitions of pollution control.
11. GOST 17.1 1 02-77. Protection of Nature. Hydrosphere. Classification of water bodies

12. GOST 17.1.1.01-77. Protection of Nature. Hydrosphere. Use and protection of waters. Basic terms and definitions.
13. GOST 17.1.3.13-86. Protection of Nature. Hydrosphere General requirements for the protection of surface water from pollution.
14. GOST 17.2 3.01-76. Protection of Nature. Atmosphere. Emission classification by composition
15. GOST 17.2.1.02-76 Nature protection. Atmosphere. Terms and definitions of emissions of motor vehicles, tractors, self-propelled agricultural and road-building machines.
16. GOST 17.2.1.04-77. Protection of Nature. Atmosphere Sources and meteorological factors of pollution, industrial emissions. Terms and Definitions. Collection of regulatory materials on environmental protection. Prince 4. Protection of water bodies Sanitary requirements for the design of domestic water supply facilities. M, 1994.
17. GOST 17.2.3.01-86. Nature Conservancy Atmosphere. The rules of air quality control of settlements.
18. GOST 17.2.4.02-81. Protection of Nature. Atmosphere. General requirements for methods for the determination of pollutants
19. GOST 17.4 2.03-86. Soil Nature Conservation. Soil passport
20. GOST 17.4.1 02-83. Protection of Nature. Soils. Chemical classification for pollution control

Databases, reference and search engines:

www.elibrary.ru, www.twirpx.ru

5. Evaluation tools designed to establish during the certification tests Compliance / non-conformity of the level of training graduates who have completed the development of EP

A graduate who has mastered the master program should have the following universal competencies (UC):

- Able to search, critical analysis problem situations based on a systematic approach, develop an action strategy (UC -1);
- Able to manage a project at all stages of its life cycle (UC -2);
- Able to organize and manage the work of the team, developing a team strategy to achieve the goal (UC -3).
- Able to apply modern communication technologies in the state language of the Russian Federation and foreign language (s) for academic and professional interaction (UC - 4).
- Able to analyze and take into account the diversity of cultures in the process of intercultural interaction (UC - 5).

- Able to determine and implement the priorities of their own activities and ways to improve them on the basis of self-esteem (UC -6).

A graduate who has mastered the master's program must have the following general professional competencies (GPC):

- Able to analyze modern problems of science and production, solve complex (non-standard) tasks in professional activities (GPC-1);
- able to transfer professional knowledge with using modern pedagogical techniques (GPC -2);
- Able to develop and implement new effective technology in a professional activities (GPC -3).
- Able to conduct research, analyze the results and prepare reporting documents (GPC -4).
- Able to carry out a feasibility study of projects in professional activities (GPC -5).
- Able to manage teams and organize production processes (GPC -6).

A graduate who has mastered the master's program must have professional competencies (PC) corresponding to the type (types) of professional activity to which (which) the master's program is oriented:

production and technological activity:

- readiness for the design of technological processes for the engineering preparation of the territory, construction and maintenance of landscape architecture objects (PC-1);
- the ability to assess the effectiveness of the use of materials, equipment, technological processes at landscape architecture objects (PC-2);
- the ability to assess the impact of measures for the rational use and management of landscapes, taking into account improving the quality and safety of the human environment (PC-3);
- the ability to implement measures for external landscaping and landscaping to create favorable sanitary and hygienic conditions, to increase the level of comfort of a person's stay in an urban environment, its general aesthetic enrichment (PC-4);
- the ability to develop and implement a system of measures to preserve plantings in the interests of ensuring the right of every citizen to a favorable environment (PC-5);
- readiness to organize urban monitoring and inventory work on landscape architecture objects, compiling a green space inventory (PC-6);

organizational and management activities:

- ability to organize and conduct all types of work on landscape architecture objects (PC-9);

- readiness to manage landscape architecture objects in the field of their functional use, protection and protection (PC-10);
- research activities:*
- readiness to obtain new knowledge and conduct applied research in the field of landscape architecture (PC-16);
 - ability to develop work plans and research programs in the field of landscape architecture, the ability to organize the collection, processing, analysis and
 - systematization of scientific and technical information on the research topic, the choice of methods and tools for solving problems (PC-17);
 - ability to prepare scientific and technical reports, reviews, publications based on the results of research in the field of landscape architecture (PC-18);
- design activity:*
- the ability to carry out the planning organization of open spaces, the design of the external environment, the design of landscape architecture objects, to develop restoration and reconstruction projects of territories of cultural heritage objects (PC-21);
 - willingness to participate in the project activities of organizations, to work in a team of specialists related to sustainable development of territories at the stage of territorial planning and preparation of master plans for settlements and urban agglomerations (PC-22);
 - willingness to develop (based on current standards) methodological and regulatory documents for the design of landscape architecture objects (PC-24);

Scale scores for the oral answer at the interdisciplinary exam:

Score "5" (excellent) is set if:

- the content of the examination ticket material is fully disclosed;
- the material is presented correctly, in a certain logical sequence;
- demonstrated systemic and in-depth knowledge of the program material;
- accurately used terminology;
- shows the ability to illustrate theoretical positions with specific examples, apply them in a new situation;
- assimilation of previously studied related issues was demonstrated, the formation and sustainability of competencies and skills;
- the answer sounded independently, without leading questions;
- demonstrated the ability to creatively apply the knowledge of the theory to the solution professional tasks;
- demonstrated knowledge of modern educational and scientific literature;
- Allowed one - two inaccuracies in the coverage of secondary issues that corrected by the remark.

A rating of "4" (good) is set if:

- questions of the examination material are presented systematically and consistently;
- demonstrated the ability to analyze the material, but not all conclusions are reasoned and evidentiary;
- demonstrated the mastery of the main literature.
- the answer mainly satisfies the requirements for the assessment of "5", but it has one of the disadvantages: in the presentation of small spaces that do not distort the content of the answer;
- One or two shortcomings were made when covering the main content of the answer, corrected as noted by the examiner;
- a mistake or more than two shortcomings were made when covering minor issues, which are easily corrected by the notice of the examiner.

A rating of "3" (satisfactory) is set if:

- the content of the material is incomplete or inconsistent, but the general is shown understanding of the issue and demonstrated skills sufficient for further learning material;
- mastered the main categories on the subject and additional issues;
- there were difficulties or mistakes in the definition of concepts, use terminology corrected after several leading questions;
- with incomplete knowledge of theoretical material revealed insufficient the formation of competencies and skills, the student can not apply the theory in a new situation;
- demonstrated the mastery of the main literature. A rating of "2" (unsatisfactory) is set if:

- not disclosed the main content of educational material;
- Ignorance or misunderstanding of most or most important material;
- mistakes are made in the definition of concepts, when using terminology, which not corrected after several leading questions.
- not formed competencies, abilities and skills.

6. Requirements for final qualifying work

6.1 A student who has passed the state exam (with availability). The WRC is defended at an open meeting of the State Examination Commission (SEC).

The state final certification is held in the form of an oral presentation of the WRC, followed by oral responses to questions from members of the SEC in accordance with the Regulations University of the WRC. The report and / or answers to the questions of the members of the GEC can be on foreign language.

6.2 The topic of a Master's WRC should be relevant, represent scientific and practical interest and match selected direction (and educational program) preparation. In the formation of the subject of graduate works.

The department takes into account the following factors:

- relevance of the topic;
- compliance with the theme of the scientific profile of the department;
- provision of basic data, information resources and literary sources;
- compliance with the theme of individual abilities and master's interests;
- a variety of topics.

The topic should be formulated in such a way that most specifically reflected the main idea of the work. Title topics should not coincide with the name of the direction (program) preparation, but it should be formulated within the framework of this directions (programs).

The topic of master's work can be recommended by the department either graduate can offer his topic with a rationale the feasibility of its development.

It is necessary to take into account eight general requirements for the formulation of the topic: the limit conciseness, problemness, clarity of meaning (clarity), harmonious sound.

When choosing the topic of master's work is necessary consider the relevance of the theme to the research profile and qualifications supervisor.

6.3. The list of recommended topics for final qualifying works in the direction of 35.04.09 "Landscape architecture"

1. Landscape improvement of the park (square, street, courtyard area, embankment, and so on)
2. Reorganization of the park (square, street, courtyard area, embankment, and so on).
3. Design proposal of the park (square, street, courtyard area, embankment, and so on)

6.4. The tasks that the student must solve in the process of performing final qualifying work:

Final qualifying work (hereinafter - WRC) should have an independent, holistic and complete character, a logical structure reflecting the relationship between the phenomena under consideration, arguments, generalizations, conclusions and recommendations given by the author. When writing a WRC, a thorough analysis of the degree of elaboration of the topic should be presented, and the main concepts on the subject matter should be described.

The work should have a significant scientific novelty, including the identification of new facts, trends, consideration of new aspects of the object of study or analysis of previously known provisions from other scientific positions.

At the same time, in contrast to dissertations for academic degrees, which are thorough research works, the scientific novelty of which is determined by the contribution to the development of the relevant field of scientific knowledge, WRC bachelor's degrees can still be attributed to a special type of scientific work, whose scientific novelty may consist in modification and substantial clarification or original generalization of already known concepts and scientific provisions.

In the process of preparing and protecting a WRC, a graduate must demonstrate:

- knowledge gained from academic disciplines that take into account both the focus of the educational program and specialization in general;
- ability to work with special and methodical literature, including literature in a foreign language, regulatory documentation, statistical information;
- research skills;
- the ability to self-summarize the results of the study and formulate conclusions;
- possession of a computer and special software as an information processing tool;
- the ability to logically construct the text, formulate conclusions and suggestions.

6.5. The stages of the implementation of final qualifying work (WRC), the conditions for admitting a student to the protection procedure, requirements for structure, scope, content and design, as well as a list of required and recommended documents submitted for protection are specified in the guidelines approved in the prescribed manner: "Guidelines for writing the final qualifying work in the direction 35.04.09 "landscape architecture"

6.6 **Evaluation tools** The state interdisciplinary exam consists of 2 stages - the mandatory test part and the main oral exam.

The test part includes 30 questions in the computer program "Mentor", which are formed by the student when answering in random order.

The questions of the test part are reflected in the Funds of GIA Assessment Funds.

For the correct performance of all tasks, the graduate can receive up to 100 points in accordance with the grading scale.

Grading criteria.

Points	Russian marks	ESTC Marks
95-100	5	A
86-94		B
69-85	4	C
61-68	3	D
51-60		E
31-50	2	Fx
0-30		F
51-100	Зачет	Passed

To evaluate the results of the test part, the direct dependence of the sum of points scored on the number of correct answers to the test questions is used. 1 correct answer gives 1 point. The test includes 100 questions and allows the graduate to get 25 points. The final result is calculated automatically by the Mentor program.

At the same time, a graduate who has scored 51 percent or more receives a rating of “satisfactory”, “good” or “excellent” depending on the points scored and is considered admitted to the main part of the MDE.

The assessment obtained at testing is not reflected in the final documents, however, it is taken into account in case of disagreement among the members of the attestation commission when evaluating the results of the main part of the MRE.

If the graduate scored less than 51 percent and received a rating of "unsatisfactory", he is given another attempt to pass the test part of the MDE in the timeline preceding the main part of the MDE. In the case of re-receiving an unsatisfactory grade, the graduate is considered not to have mastered the main educational program and is not allowed until further passing of the state final attestation.

The main part of the MDE is held in the form of a written exam. A bachelor graduate must demonstrate his level of mastery of core competencies in accordance with OS VO RUDNU / GEF VO in direction 35.03.10 "Landscape Architecture" when answering questions of an examination card.

Examination ticket for the main part of the exam includes 5 questions in the following disciplines: Decorative Dendrology, History of Landscape Architecture, Urboecology and Monitoring, Construction and Maintenance of Landscape Architecture Objects, Landscape Design.

For each answer you can get a maximum of 15 points. Thus, for a written exam, you can get a maximum of 75 points.

The scores of the test part and the written exam are summarized.

The mark "excellent" (86-100 points) is set if:

- the content of the examination ticket material is fully disclosed;
- The material is presented correctly, in a certain logical sequence;
- demonstrated systemic and in-depth knowledge of the program material;
- accurately used terminology;

- the ability to illustrate theoretical positions with concrete examples is shown, to apply them in a new situation;
- demonstrated the assimilation of previously studied related issues, the formation and sustainability of competencies and skills;
- the answer sounded independently, without leading questions;
- demonstrated the ability to creatively apply the knowledge of the theory to solving professional problems;
- demonstrated knowledge of modern educational and scientific literature;
- Allowed one or two inaccuracies in the coverage of minor issues that are corrected by the remark.

The mark "good" (69-85 points) is set if:

- questions of the examination material are presented systematically and consistently;
- demonstrated the ability to analyze the material, however, not all conclusions are reasoned and demonstrative;
- demonstrated the mastery of the main literature;
- the answer mainly satisfies the requirements for the assessment “5”, but at the same time it has one of the drawbacks:
 - in the presentation of small gaps that do not distort the content of the answer;
 - One or two shortcomings were made in covering the main content of the answer, corrected on the remark of the examiner;
 - a mistake or more than two shortcomings were made when covering minor issues that are easily corrected by the examiner's remark.

Score "satisfactory" (51-68 points) is set if:

- the content of the material is incompletely and inconsistently disclosed, but a general understanding of the issue is shown and skills sufficient for further mastering the material are demonstrated;
- the main categories on the subject and additional issues were learned;
- there were difficulties or mistakes in the definition of concepts, the use of terminology, corrected after several leading questions;
- with incomplete knowledge of theoretical material, insufficient formation of competences and skills was revealed, the student cannot apply the theory in a new situation;
- demonstrated the mastery of the main literature.

The rating of "unsatisfactory" (less than 51 points) is set if:

- the main content of the educational material is not disclosed;
- Ignorance or misunderstanding of the most or most important part of the educational material was found;

- mistakes are made in the definition of concepts, etc. and using terminology that is not corrected after several leading questions;
- the competencies, abilities and skills envisaged by the OS VO RUDN / GEF VO in the direction of 38.03.01 Economics are not formed.

The final results of the MDE are announced by the Chairperson of the SEC in the presence of all the participants in the state final certification.

Questions for the state exam “Management and design of urban green infrastructure”

1. A city: definitions, categories and features?
2. Air pollution
3. Contaminants of the atmosphere and sources of contamination (pollution)
4. Heat island effect: reasons and consequences
5. Hydrosphere and global water distribution
6. Urban areas structure and functional zoning?
7. Urban ecology: problems and objects, goals and methods.
8. Urban ecosystems and urban landscapes?
9. Water use and water consumption
10. Anthropogenic impacts on the atmosphere.
11. Explain the term—“plot”? What are the uses of a plot design? How do you understand the term "structure of the lines on the surface of the earth"? How do you understand the term "visual code"?
12. How do you explain the term "technology green and grey"?
13. How do you understand the term - "ecological architecture"? Name the modern eco-technologies? What is the structure of ecological construction in Europe and Scandinavia?
14. How do you understand the term "land without relief"? What are its characteristics? What are the tools of landscape with artificial relief? List them
15. List the features using of plant material in the landscape composition? What are the modern ways of using variegated forms in the urban open space?
16. Name the use of relief situation? How do you understand the term "sloping situation"? What are its characteristics? What are the tools of landscape work with the natural topography? List them.
17. What are the materials for the design of landscape model?
18. What are the objectives of the plot? What is the role of the form "wave" in the landscape design of urban space? How do you understand the term "bionic form"? How do you understand the term "history of the place"?
19. What are the tools of landscape design?
20. What do you mean by the term "layers of plant material"? What are the components of the medium volume-spatial structure of the 1st level? From what

meansconsists of the volume-spatial structure of 2-nd level? From what meansconsists of the volume-spatial structure of 3-d level?

21. Bacterial diseases: Symptoms, contamination, possible losses, identification
22. Cultural control. Preparation of plant material, plant residues, fertilization, plant density
23. Fungal diseases: Symptoms, contamination, possible losses, identification
24. Main symptoms on different plant groups. Possible losses from diseases. Direct and non direct losses.
25. Methods of plant protection. Host plant resistance. Cultural, physical, chemical, biological means of plant diseases, pests and weed control. Quarantine for pathogens management.
26. Noninfectious diseases. Environment conditions/ causing plant diseases
27. Physical method of plant protection. Cooling and freezing. Drying and desiccants. Modified atmospheres
28. Seeds and planting stock contamination. Identification. Possible losses.
29. Viral diseases: Symptoms, contamination, possible losses, identification
30. Viruses, viroids, bacteria, fungi. Pathogenesis in different plants.

Test

1. How do you understand the term - "ecological housing" in landscape architecture?
 - A forest areas
 - B. presence of water objects on the territory
 - C. Integration of modern technology with the means of landscape design to improve the environmental quality of the environment for its further sustainable development.**
2. How do you understand the term "ecological architecture"?
 - A plot on the way to the building
 - B. to use the modern technology of green roofs, facades and sections on the approaches to the residential and public buildings, improving the environmental quality of the environment for its further sustainable development.**
 - B. green roof
3. Name the modern eco-technologies?
 - A. using wind and solar energy, resource rainwater for reuse, as well as**

- technologies of roof landscape design, the surfaces of facades and sections on the approaches to the residential and public buildings
- B. Rainwater Harvesting
 - C. competent leveling of the territory
4. What are the materials for the design of landscape model?
- A. pencils
 - B. White Paper
 - C. foam board, bread board knife, colored paper, wire, tooth picks, clay, glue, felt, thread, materials for felting
5. What is the feature of planning decisions of the "new city"?
- A. natural areas in the building
 - B. the relationship between water and green infrastructure with a system of green "corridors" and green communication spaces**
 - C. convenient communication system
6. What is meant by the term "tablet"?
- A. The design of the ground surface
 - B A plane for drawing
 - C. natural relief of the territory
7. What do you mean by the term "technology of green and grey"?
- A. asphalt and vegetation
 - B. ratio of natural and artificial materials in the proposed design, the ground surface**
 - B. green and gray
8. How do you understand the term "collage"?
- A. The creative aspect of the work of the landscape designer, which is manifested by the development stage of preliminary proposals
 - B. the idea of conceptual proposals
 - C. concept offers
9. As you understand the term "structure of the lines on the surface of the earth"?
- A. The opportunity to walk in the direction of

- B. visual code
 - C. Use different colors of paving
10. How do you understand the term "visual code"?
- A. code consisting of numbers
 - B. Use different colors of paving
 - C. Structure of the lines on the ground, helping the person to intelligently navigate in space
11. List the properties of water used in the landscape environment of the city?
- A. The ability to be in a state of rest, stress, produce noise, be in a finely divided state, to improve the environmental characteristics of the medium
 - B. freeze
 - C. to move into a fine state
12. How do you understand the term "the layers of plant material"?
- A. The vegetation of the upper tier
 - B. Vegetation middle tier
 - C. volume-spatial structure of vegetation: 1st tier (lawn, ground cover plants), tier 2 (shrubs), 3-tier (trees).
13. What are the new technologies of arrangement of water bodies?
- A. the fountain without basement and water is located close to the person
 - B. water mirror to repeat Landscapes
 - C. filled with fountains
14. What is the purpose of light using in the design of objects of landscape architecture?
- A. increasing the time using of new contemporary landscape design and safety in the evening
15. B. Beauty
- C. to highlight certain elements of the project
15. List of lighting design using in urban environment?
- A. create dendrology aspects
 - B. to highlight the near and long-range availability of urban space
 - C. Peripheral areas

16. *Define urban ecology*
- A) branch of science about urbanization
 - B) branch of science about cities
 - C) branch of science about interrelationships between citizens and urban environment**
17. *A settlement in Russian Federation is defined as a city if*
- A) a population is above 12000
 - B) a population is above 12000, 85% of which are not involved in the agriculture**
 - C) 100% of the population is not involved in agriculture
18. *Which of the following cities is approximated by the concentric model of spatial organization?*
- A) Saint-Petersburg
 - B) Moscow**
 - C) London
19. *Micro-district is a structural unit of:*
- A) industrial area
 - B) recreational area
 - C) residential area**
20. *Several neighboring cities, which are strongly economically related, although the boundaries remain visible*
- A) Urban agglomeration
 - B) Conurbation**
 - B) Megapolis
21. *Anthropogenic risks of Earthquake include*
- A) age and quality of building constructions**
 - B) size of the area
 - C) location in seismic zones
22. *Young geological formations, resulted from engineering and household activity*
- A) Soil

B) Sewage waters

C) Anthropogenic sediments

23. *Urban areas are defined as flooded*

A) When the ground waters are on the surface

B) Ground waters are at 1 m depths

C) Ground waters are 3 m depth or above

24. *Which are the most likely contaminants in ground waters of residential areas?*

A) chlorides, nitrates, oil products

B) oil products and heavy metal

C) organic matter, pathogenic microorganisms

25. *Physical pollution in urban areas include:*

A) vibration

B) radioactive pollution

C) salinization

26. *Urban ponds with an extent larger than 50 km²*

A) small

B) very large

C) average

27. *Water supply is performed*

A) Up-stream from the city boundary

B) Down-stream from the city boundary

C) Within the city boundary

28. *Building-up of the river valleys result in the following changes in run-off*

A) surface run-off decreases and underground run-off increases

B) surface run-off increases and underground run-off decreases

C) both surface and underground run-off increases

29. *Which condition is not necessary for the 1st (the strictest) sanitary zone of the water supply point?*

A) at least 200 m up-stream

B) at least 100 m at the adjacent bank

C) at least 200 m down-stream

30. *Which contaminants are more likely in domestic sewage waters?*

A) heavy metals

B) oil products

C) surface-active materials, ammonia and pathogens

Reference

on the material and technical support of the basic educational program of higher education - graduate programs
35.04.09 "Landscape Architecture" specialization "Management and design of urban green infrastructure"

№	Name of the discipline (module), practice in accordance with the curriculum	Name of special * rooms and rooms for independent work	The equipment of special rooms and rooms for independent work	List of licensed software. Details of the supporting document
1	Data analysis and statistics	Moscow, st. Miklouho-Maclay, 8, block 2 Training audience for group and individual consultations: aud. No. 418	A set of specialized furniture; technical facilities: BenQ MW612 multimedia projector, projection screen, DELL INSPIRON 5570 laptop, Internet access	<ul style="list-style-type: none"> • Microsoft Windows 7 Professional Russian Upgrade Academic Open No Level, License No. 15988873, dated 15/01/2003 • Microsoft Office 2007 Russian Academic Open No Level License No. 43178981, issued on December 12, 2007. R Open Source Software R Studio Open Source Software
2	International regulation in city planning and environmental protection	Moscow, st. Miklouho-Maclay, 8, block 2 Training audience for group and individual consultations: aud. No. 418	A set of specialized furniture; technical facilities: BenQ MW612 multimedia projector, projection screen, DELL INSPIRON 5570 laptop, Internet access	<ul style="list-style-type: none"> • Microsoft Windows 7 Professional Russian Upgrade Academic Open No Level, License No. 15988873, dated 15/01/2003 • Microsoft Office 2007 Russian Academic Open No Level License No. 43178981, issued on December 12, 2007. R Open Source Software R Studio Open Source Software
3	Urban ecology	Moscow, st. Miklouho-Maclay, 8, block 2 Training audience for group and individual consultations: aud. No. 203	A set of specialized furniture; technical facilities: BenQ MW612 multimedia projector, projection screen, DELL INSPIRON 5570 laptop, Internet access	<ul style="list-style-type: none"> • Microsoft Windows 7 Professional Russian Upgrade Academic Open No Level, License No. 15988873, dated 15/01/2003 • Microsoft Office 2007 Russian Academic Open No Level License No. 43178981, issued on December 12, 2007.

4	Landscape design, architecture and city-planning	Moscow, st. Miklouho-Maclay, 8, block 2 Training audience for group and individual consultations: aud. No. 203	A set of specialized furniture; technical facilities: BenQ MW612 multimedia projector, projection screen, DELL INSPIRON 5570 laptop, Internet access	<ul style="list-style-type: none"> • Microsoft Windows 7 Professional Russian Upgrade Academic Open No Level, License No. 15988873, dated 15/01/2003 • Microsoft Office 2007 Russian Academic Open No Level License No. 43178981, issued on December 12, 2007.
5	Phytopathology and Plant Protection	Moscow, st. Miklouho-Maclay, 8, block 2 Training audience for group and individual consultations: aud. No. 234	A set of specialized furniture; technical facilities: BenQ MW612 multimedia projector, projection screen, DELL INSPIRON 5570 laptop, Internet access	<ul style="list-style-type: none"> • Microsoft Windows 7 Professional Russian Upgrade Academic Open No Level, License No. 15988873, dated 15/01/2003 • Microsoft Office 2007 Russian Academic Open No Level License No. 43178981, issued on December 12, 2007.
6	Scientific writing skills	Moscow, st. Miklouho-Maclay, 8, block 2 Training audience for group and individual consultations: aud. No. 418	A set of specialized furniture; technical facilities: BenQ MW612 multimedia projector, projection screen, DELL INSPIRON 5570 laptop, Internet access	<ul style="list-style-type: none"> • Microsoft Windows 7 Professional Russian Upgrade Academic Open No Level, License No. 15988873, dated 15/01/2003 • Microsoft Office 2007 Russian Academic Open No Level License No. 43178981, issued on December 12, 2007. R Open Source Software R Studio Open Source Software
7	Foreign language (Business English/ Technical English)	Moscow, st. Miklouho-Maclay, 8, block 2 Training audience for group and individual consultations: aud. No. 418	A set of specialized furniture; technical facilities: BenQ MW612 multimedia projector, projection screen, DELL INSPIRON 5570 laptop, Internet access	<ul style="list-style-type: none"> • Microsoft Windows 7 Professional Russian Upgrade Academic Open No Level, License No. 15988873, dated 15/01/2003 • Microsoft Office 2007 Russian Academic Open No Level License No. 43178981, issued on December 12, 2007. R Open Source Software R Studio Open Source Software

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Intelligence

about the availability of printed and electronic educational and information resources

35.04.09 "Landscape Architecture" specialization "Management and design of urban green infrastructure"

№	The name of the subject, discipline, module in accordance with the curriculum	The author, title, place of publication, publishing house, year of publication of educational and methodical literature	Email address of the electronic library system	Number of paper copies	Number of students at the same time studying the subject, discipline, module
	Basic part				
	Data analysis and statistics	Information and telecommunication technologies and mathematical modeling of high-tech systems [Electronic resource]: Materials of the All-Russian conference with international participation. Moscow, PFUR, April 16–20, 2018 - Electronic text data. - M.: PFUR Publishing House, 2016. - 428 p. : il. - ISBN 978-5-209-08641-3.	http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=470303&idb=0	<i>electronic resource</i>	8
		Methodology of scientific research [Electronic resource]: Textbook / N.A. Slesarenko [et al.]; Ed. ON. Slesarenko. - SPb. : Lan publishing house, 2017. - 268 p. - (Textbooks for universities. Special literature). - ISBN 978-5-8114-2183-1.	http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=464953&idb=0	<i>electronic resource</i>	8
	International regulation in city planning and environmental protection	Caquard Sebastien. Mapping Environmental Issues in the City [Electronic resource]: Monograph / S. Caquard, L. Vaughan. - Electronic text data. - 2011. - (Lecture Notes in Geoinformation and Cartography, ISSN 1863-2246). - System requirements: Windows XP and above. - ISBN 978-3-642-22440-9.	http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=371427&idb=0	<i>electronic resource</i>	8
		Hojer Mattias. Images of the Future City [Electronic resource]: Monograph / M. Hojer, A. Gullberg. - Electronic text data. - 2011. – System Requirements: Windows XP and above. - ISBN 978-94-007-0652-1.	http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=371501&idb=0	<i>electronic resource</i>	8

		Wong Tai-Chee. Eco-city Planning [Electronic resource]: Monograph / T. Wong, B. Yuen. - Electronic text data. - 2011. - System requirements: Windows XP and higher. - ISBN 978-94-007-0382-7.	http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=371492&idb=0	<i>electronic resource</i>	8
Urban ecology		Kurbatova A.S., Bashkin V.N., Kasimov N.S. «Ecology of a city». – M.: 2004 – 624 p (in Russian).	http://lib.rudn.ru/MegaPro/Web/SearchResult/ToPage/1	5	8
Landscape design, architecture and city-planning		Zaykova Elena Yuryevna. Development strategies of urban areas. Landscape planning [Text / electronic resource]: A teaching aid for students enrolled in the specialty 35.03.10 and 35.04.09-Landscape architecture and design of the urban environment / E.Yu. Zaykova. - Electronic text data. - M.: PFUR Publishing House, 2017. - 72 p. : il. - ISBN 978-5-209-08398-6: 158.09.	http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=468036&idb=0	55	8
Variable part					8
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