

Федеральное государственное автономное образовательное учреждение
высшего образования

**«РОССИЙСКИЙ УНИВЕРСИТЕТ ДРУЖБЫ НАРОДОВ»
(РУДН)**

PROGRAM

Discipline title

Data analysis and statistics

Recommended for the educational direction

35.04.09 Landscape architecture,
profile “Management and design of urban green infrastructure”

1. Goals and aims of the discipline:

The goal of the discipline is to acquire skills in data collection, preparation, processing and statistical analysis, as well as visualization and presentation of research results.

Aims:

- get to know the methodology of collecting, analyzing information and interpreting research results;
- learn the basics of mathematical statistics (descriptive statistics, correlation analysis, analysis of variance);
- to master the technology of visualization of the results of scientific work, to be able to make graphs, tables, pictures, maps, maps, diagrams, create presentations.

2. Place of the discipline in the educational program:

The discipline «Data analysis and statistics» refers to the basic part of block 1 of the curriculum of the curriculum and is taught in semester 1 and 2. The discipline includes 8 ECTS (288 hours). The basic discipline to master «Data analysis and statistics» is «Introduction to research in landscape architecture» (in Russian).

Table 1 shows the preceding and subsequent disciplines aimed at the formation of the competences of the discipline in accordance with the matrix of competencies of the Educational Program (EP).

Table 1

Prior and subsequent disciplines aimed at the formation of competencies

№	Code and name of competence	Prior disciplines	Subsequent disciplines (groups of disciplines)
Common cultural competences			
1.	CCC-1,2,3	«Introduction to research in landscape architecture» (in Russian)	«Modeling urban ecosystems» (MOOC)
General Professional Competences			
2.	GPC – 1, 2	«Introduction to research	«Modeling urban

		in landscape architecture» (in Russian)	ecosystems» (MOOC)
Professional competencies			
3.	PC – 3, 6, 7, 13, 16, 18, 22, 25, 26	«Introduction to research in landscape architecture» (in Russian)	«Modeling urban ecosystems» (MOOC)

3. Requirements to the results of the discipline mastering:

The process of studying the discipline is aimed at the formation of the following competencies:

Universal competences:

- Able to search, critical analysis problem situations based on a systematic approach, strategize (UC-1);
- Able to manage a project at all stages life cycle (UC-2);
- Able to organize and direct work teams, developing a team strategy for achieving the set 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 diversity cultures in the process of intercultural interaction (UC-5).
- Able to identify and implement priorities own activities and ways to improve it self-assessment (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).

General professional competencies (GPC):

- Able to analyze modern problems of science and production, to solve complex (non-standard) tasks in professional activity; (GPC-1);
- Able to analyze modern problems of science and production, to solve complex (non-standard) tasks in professional activity; (GPC-2);
- Able to develop and implement new effective technologies in professional activities; (GPC-3);
- Capable of conducting scientific research, analyze the results and prepare reporting documentation; (GPC-4);
- Able to carry out technical and economic justification 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, 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);

professional competencies (PC):

- the ability to develop work plans and programs for scientific research 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 means of solving problems (PC-17):

In the result of the discipline the master-student shall:

Know

- methods of planning and conducting research, collecting and interpreting the data obtained and presenting the results of the research;
- basic approaches of statistical modeling;
- main spatial modeling approaches;

- main process modeling approaches

Be capable to

- logically formulate, state and reasonably defend their own vision of the problems under consideration;
- plan and conduct research, systematize and interpret the data and present the results of the study;

Master

- methods of scientific knowledge;
- methods of discussion, controversy, dialogue;
- methods of mathematical modeling;
- methods of presenting research results

4. Discipline volume and types of educational activities

General labor-intensiveness of the discipline amounts to 8 ETCS.

Educational activity	Total hours	Semesters			
		1	2	3	4
Audience hours (in total)	120	60	30	30	
Including:	-	-	-	-	-
Lectures	30	15	7	7	
Laboratory work (LW)					
Seminars (S)					
Audience hours (in total)	90	45	22	22	
Individual work (in total)	168	84	42	42	
Total labor-intensiveness hours ETCS	288	144	72	72	
	8	4	2	2	

5. Content of the discipline

5.1. Content of the discipline sections

№	Section name	Section content
1.	Methodology of scientific research	<ul style="list-style-type: none"> – Observations – Experiments – Modelling
2.	Collecting and	<ul style="list-style-type: none"> – Data types

	organization of research data	<ul style="list-style-type: none"> – Data sampling – Datasets
3.	Introduction into descriptive statistics	<ul style="list-style-type: none"> – Mean, median, mode – Sample and population – Scatter plots – Variance – Histograms – Box & Whiskers
4.	Statistical hypothesis	<ul style="list-style-type: none"> – Probability – Distribution – Normal and non-normal distribution – Significance level
5.	T-test	<ul style="list-style-type: none"> – One-sample T test – Paired T-test – T-test for independent sample
6.	Correlation	<ul style="list-style-type: none"> – Pearson correlation – Spearman correlation – Graphical interpretation of correlation
7.	Simple linear regression	<ul style="list-style-type: none"> – Regression equations – Determination coefficient
8.	Multiple regression	<ul style="list-style-type: none"> – Regression models – Fitting regression models – Logistic regression

5.2. Discipline sections and types of educational activity

№	Name of the discipline section	Lect.	Pract.	Lab.	Sem.	Ind. work	Tot.
1.	Methodology of scientific research	2			6	18	26
2.	Collecting and organization of research data	4			12	22	38
3.	Introduction into descriptive	4			12	22	38

	statistics						
4.	Statistical hypothesis	4			12	22	38
5.	T-test	4			12	22	38
6.	Correlation	4			12	22	38
7.	Simple linear regression	4			12	20	36
8.	Multiple regression	4			12	20	36

6. Seminars

№	Name of the discipline section	Name of the laboratory work	Hours
1.	1.	Introduction to R	2
2.	2.	R environment and package installation	2
3.	3.	Datasets in R	2
4.	4.	Graphical capabilities of R	2
5.	5.	Analysis of outliers	2
6.	6.	Descriptive statistics in R	2
7.	7.	Parametric and nonparametric) for comparing two dependent and independent samples	2
8.	8.	Regression	2

8. Material-technical support of the discipline:

For conducting lecture-type classes, laboratory classes, group and individual consultations, monitoring and interim attestation, course design (coursework), the practice requires a classroom equipped with:

- standard equipment (educational furniture for students, teacher's workplace, blackboard);
- computers, connected to the information and telecommunication network "Internet";
- software including R (open soft), MS office (Word, Excel, Power Point),
- multimedia installation (PC, screen, projector);

9. Information support of the discipline

a) Software: R, MS office (Word, Excel, Power Point)

б) Databases, information and reference and search engines:

- Educational and Scientific Information Library Center (Scientific Library)

UNIBC (NB) RUDN: <http://lib.rudn.ru>;

- Electronic database "Scopus": <http://www.scopus.com>; - Scientific electronic library eLIBRARY: <http://elibrary.ru>;

10. Literature and informative support of the discipline

a) main literature:

1. D. M. Diez, C.D. Barr, M. Cetinkaya-Rundel . OpenIntro Statistics. 2014. openintro.org
2. J. Leek. The elements of data analytic style. <http://leanpub.com/datastyle>
3. Dmitriev E.A. Mathematical statistics in soil science. MSU edition. 1995.
4. R. Lyman Ott & Michael Longnecker. An introduction to statistical methods and data analysis. 6th edition
5. Hans-Peter Pifo. Statistics for bachelors in Agriculture and Renewable Energy sources. Hohenheim. 288 P.

b) supplementary literature:

6. Aller L., T. Bennett, J. H. Lehr, R. J. Petty, and G. Hackett. 1987. DRASTIC: A standardized system for evaluating ground water pollution potential using hydrogeological settings. EPA/600/2-87/035. Washington, D.C.: Environmental Agency.
7. ArcGis 9. Что такое ArcGis? Официальное руководство ESRI. США. 2004.-127 с.
8. Bailey, T. C., and A. C. Gatrell. 1995. Interactive spatial data analysis. Harlow, UK: Longman.
9. Batty, M. J. 1997. The computable city. International Planning Studies 2: 155–73.
10. Batty, M. J., and P. A. Longley. 1994. Fractal cities: A geometry of form and function. San Diego, Calif.: Academic Press.
11. Benenson, I. 2004. Agent-based modeling: From individual residential to urban residential dynamics. In Spatially integrated social science, ed. M. Goodchild and D. J. Janelle, 67–94. New York: Oxford University Press.
12. Berger T. Agent-based spatial models applied to agriculture: a simulation tool for technology diffusion, resource use changes and policy analysis. 2001. Agricultural Economics. # 25. P. 245–260.

13. Carey, G. F., ed. 1995. Finite element modeling of environmental problems: Surface and subsurface flow and transport. New York: John Wiley and Sons.
14. Crosier, S. J., M. F. Goodchild, L. L. Hill, and T. R. Smith. 2003. Developing an infrastructure for sharing environmental models. *Environment and Planning B: Planning and Design* 30: 487–501.
15. Dibble, C., and P. G. Feldman. 2004. The GeoGraph 3D Computational Laboratory: network and terrain landscapes for RePast. *Journal of Artificial Societies and Social Simulation* 7(1). Available: jasss.soc.surrey.ac.uk/7/1/7.html.
16. Engelen G., White R., De Nij T. Environment Explorer: Spatial Support System for the Integrated Assessment of Socio-Economic and Environmental Policies in the Netherlands. 2003. *Integrated Assessment*. V. 4, #. 2. P. 97–105.
17. Fotheringham, A. S., and M. E. O’Kelly. 1989. *Spatial interaction models: Formulations and applications*. Boston: Kluwer.
18. Goodchild M.F. GIS and modeling overview. In: *GIS, Spatial Analysis and Modeling*. Maguire D.J. , Batty M., Goodchild M.F. (Eds). ESRI Press, Redlands. P. 2-17.
19. Goodchild, M. F., and J. Proctor. 1997. Scale in a digital geographic world. *Geographical and Environmental Modeling* 1: 5–23.
20. Goodchild, M. F., B. O. Parks, and L. J. Steyaert. 1993. *Environmental modeling with GIS*. New York: Oxford University Press.
21. Haining, R. P. 2003. *Spatial data analysis: Theory and practice*. New York: Cambridge University Press.
22. Langran, G. 1993. *Time in geographic information systems*. London: Taylor and Francis.
23. Maguire, I. L. 1969. *Design with nature*. Garden City, N.Y.: Natural History Press.
24. Modeling the Spatial Dynamics of Regional Land-Use: The CLUE-S Model *Environmental Management* V. 30, # 3, P. 391–405.
25. O’Sullivan, D., and D. J. Unwin. 2003. *Geographic information analysis*. New York: John Wiley and Sons.
26. Peuquet, D. 2002. *Representations of space and time*. New York: Guilford.
27. Tomlin, C. D. 1990. *Geographic information systems and cartographic modeling*. Englewood Cliffs, N.J.: Prentice Hall.
28. Worboys, M. F., and M. Duckham. 2004. *GIS: A computing perspective*. New York: Taylor and Francis.
29. Zeiler, M. 1999. *Modeling our world: The ESRI guide to geodatabase design*. Redlands, Calif.: ESRI Press.

10. Methodological recommendations on organization and teaching the discipline

A student is required to attend classes, fulfill the tasks of a teacher of a discipline, get acquainted with recommended literature, etc. When assessing a student, the quality of work in classes, the level of preparation for independent activities in the chosen field, the quality of the teacher's tasks, the ability to independently study the material are assessed.

At practical classes and lectures in auditoriums, the analysis of relevant topics is carried out using multimedia technology (computer, projector).

Independent work during extracurricular hours can take place both in the classroom of the department and the computer classroom, where students can study the material on presentations prepared by the department's teachers, as well as on computer tests.

Presentations on the topics of classes can be recorded on a CD or flash card for independent work of students on a home computer.

Textbooks in electronic form on a number of studied topics are posted on the pages of the department and staff of the Department of Landscape Design and Sustainable Ecosystems of the Agrarian Technological Faculty on the PFUR Training Portal, as well as on the local resources of the PFUR electronic library system.

Extracurricular independent work includes:

study of the material on the textbook, textbooks on paper and electronic media; preparation of abstract messages on the chosen topic; preparation for the performance of tests and tests.

Work with educational materials (tutorials) available on the Internet and recommended by the manufacturer of the software R-project.

To better assimilate the theoretical information obtained in this course, the student is invited to carry out independent scientific work on the preparation, processing and analysis of data under the guidance of the supervisor. This type of activity helps the student to consolidate and expand the volume of acquired knowledge, improve practical skills in working with normative, statistical material and special literature.

In this regard, the student should be especially attentive to the choice of the topic of the relevant work, the collection and primary data processing. When choosing, it is recommended first of all to take into account the student's own interest and the planned scope of his future activities. The presented list will help guide the student, determine his preferences and, together with his supervisor, formulate the topic more specifically.

12.1 Passport of Fund Evaluation funds for Data analysis and statistics

Specialty: 35.04.09 “Management and design of urban green infrastructure”

1 module

Code of the controlled competence or its part	Контролируемый раздел дисциплины	Контролируемая тема дисциплины	Наименование оценочного средства						Промежуточная аттестация	Баллы темы	Баллы раздела
			Текущий контроль								
			Коллоквиум	Тест	КР	ДЗ	Проект	Итоговая КР			
ОПК – 1 ОПК-2 ПК – 3 ПК- 6 ПК – 25 ПК - 26	Methodology of scientific research	Research methods				5	4			9	9
	Collecting and organization of research data	Data sampling		10		5	5			20	20
	Introduction into descriptive statistics	Basic statistical parameters			10	5	5		10	30	30
	Statistical hypothesis	Probability					3	3			6
Distribution						3	3			6	
Confidence						3	3			6	

		interval									
		Testing statistical hypothesis				3				3	
			ЭКЗАМЕН								20
			ИТОГО							80	100

2 Module

Код контролируемой компетенции или ее части	Контролируемый раздел дисциплины	Контролируемая тема дисциплины	Наименование оценочного средства						Промежуточная аттестация	Баллы темы	Баллы раздела
			Текущий контроль								
			Коллоквиум	Тест	КР	ДЗ	Проект	Итоговая КР			
ОПК – 1 ОПК-2 ПК – 3	T-test	One-sample and two-sample T tests				5	4			9	9
ПК- 6 ПК – 25	Correlation	Pearson and Spearman correlation		10		5	5			20	20
ПК - 26	Simple linear regression	Regression equation			10	5	5		10	30	30

Multiple linear regression	Regression model				3	3			6	21
	Fitting regression model				3	3			6	
	Model assumptions				3	3			6	
	Practical use				3				3	
		ЗАЧЕТ								20
		ИТОГО							80	100

Correspon

dence of grading systems (previously used grades of final academic performance, ECTS grades and the point-rating system (BRS) of assessments of current performance).

BRS points	Traditional estimates of the Russian Federation	ECTS grades
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

Explanation of the grades table:

Description of ECTS grades

A	<p>“Excellent” - the theoretical content of the course has been fully mastered, without gaps, the necessary practical skills for working with the acquired material have been formed, all the educational tasks provided for by the training program have been completed, the quality of their implementation was assessed by the number of points close to the maximum.</p>
B	<p>“Very good” - the theoretical content of the course has been mastered completely, without gaps, the necessary practical skills to work with the mastered material are basically formed, all the study tasks provided for by the training program have been completed, the quality of most of them is assessed by the number of points close to the maximum.</p>

C	<p>“Good” - the theoretical content of the course has been mastered completely, without gaps, some practical skills of working with the acquired material are not sufficiently formed, all the educational tasks provided for by the training program have been completed, the quality of performance of none of them was not assessed with the minimum number of points, some types of tasks were completed with errors.</p>
D	<p>“Satisfactory” - the theoretical content of the course is partially mastered, but the gaps are not significant, the necessary practical skills to work with the mastered material are basically formed, most of the educational tasks provided for in the training program have been completed, some of the completed tasks may contain errors.</p>
E	<p>“Mediocre” - the theoretical content of the course is partially mastered, some practical skills have not been formed, many of the educational tasks provided for by the training program have not been completed, or the quality of some of them is assessed by the number of points close to the minimum.</p>
FX	<p>“Conditionally unsatisfactory” - the theoretical content of the course has been partially mastered, the necessary practical skills have not been formed, most of the educational tasks provided for by the training program have not been completed, or the quality of their implementation was assessed by the number of points close to the minimum; with additional independent work on the course material, it is possible to improve the quality of the performance of educational tasks.</p>
F	<p>“Certainly unsatisfactory” - the theoretical content of the course has not been mastered, the necessary practical skills have not been formed, all completed study assignments contain gross errors, additional independent work on the course material will not lead to any significant improvement in the quality of the study assignments.</p>

Positive grades, upon receipt of which the course is credited to the trainee as passed, are grades A, B, C, D and E.

A student who has received an FX assessment in the discipline of the educational program is obliged, after consultation with the relevant teacher, to successfully complete the required minimum amount of educational work stipulated by the curriculum within the timeframes set by the curriculum, and present the results of these works to this teacher. If the quality of the work is found to be satisfactory, then the final FX mark is raised to E and the trainee is allowed to further training.

If the quality of educational work remains unsatisfactory, the final grade is reduced to F and the student is submitted for expulsion. In the case of receiving an F or FX grade, the student is presented for expulsion, regardless of whether he has any other debts in other disciplines.

3.2. Перечень рефератов и/или курсовых работ по темам

1.
 1. Design of the earth's surface - the tablet (all topics).
 2. Design of the earth's surface - artificial and natural relief.
 3. Vegetation as a means of composition.
 4. Water and Water device.
 5. Light design of urban open spaces.
 6. Modern sculpture and hardscape.
2.
 1. Design of children's play space: concept, form and function.
 2. Landscape of city streets: residential space and transport - a conflict or harmony, landscape development of transport spaces.
 3. Landscape urban areas: Landscape aspects of optimization of spaces for living and harmonization of space.
 4. Landscape urban waterfronts: Landscape transformation of the coastal territory.
 5. Landscape residential areas with high-rise buildings: yard area.
 6. Park as an object of art and technology: multifunctional park space, the subject of the natural landscape.
 7. Landscape areas with low-rise buildings - cottage villages and townhouses

TEST I

Option 1

1) How do you understand the term "ecological housing" in landscape architecture?

A forest areas

B. presence of water objects on the territory

B. 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. the use of modern technology greening roofs, facades and sections on the approaches to the residential and public buildings to improve the environmental quality of the environment for its further sustainable development.

B. green roof

3 Name the modern eco-technologies?

A. The use of wind and solar energy, resource rainwater for reuse, as well as technologies landscaping roofs, facades and sections on the approaches to the residential and public buildings

B. Rainwater Harvesting

V. competent leveling of the territory

Option 2

1) What are the materials for the design of landscape model?

A. pencils

B. White Paper

V. foam board, breadboard knife, colored paper, wire, toothpicks, clay, glue, felt, thread, materials for felting

2) What is the feature of planning decisions of the "new city"?

A. natural areas in the building

B. the relationship of water and green infrastructure with a system of green "corridors" and communication spaces

V. convenient communication system

3) Who is the author of the concept of "satellite city of garden"?

A. Frank Lloyd Wright

B. Bernard Tschumi

V. Ebenezer Howard

Option 3

1) What is meant by the term "tablet"?

A. The design of the ground surface

BA plane for drawing

B. natural relief of the territory

2) What is meant by the term "technology 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

3) 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

V. concept offers

TEST II

Option 1

1) 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

B. Use different colors of paving

2) How do you understand the term "visual code"?

A code consisting of numbers

B. Use different colors of paving

B. structure of the lines on the ground, helping the person to intelligently navigate in space

Option 2

1 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

B. to move into a fine state

2) How do you understand the term "layering of plant material"?

A. The vegetation of the upper tier

B. Vegetation middle tier

B. volume-spatial structure of vegetation: 1st tier (lawn, ground cover plants), tier 2 (shrubs), 3-tier (trees).

3) What are the new technologies of arrangement of water bodies?

A. fountains overflow devices as close as possible to the person

B. water mirror to repeat Landscapes

B. filled with fountains

Option 3

1 What is the purpose of the light used in the design of objects of landscape architecture?

A. for the duration of the use of landscape and security in the evening

B. Beauty

B. to highlight certain elements of the project

2 List the uses of lighting design in the urban environment?

A. create dendrology aspects

B. to highlight the near and long-range availability of urban space

B. Peripheral areas

3 What are the main group of lighting fixtures?

A zero (flush with the pavement), low (30-40 cm), medium (1-1,2m) and the highest (from 4m).

B. tall pillars

V. Spotlights

II semester:

TEST I

Option 1

1 The relationship of the proposed facility with nature is carried out by:

A) a thorough analysis of the site, taking into account the diversity of the materials used, the organization of space, movement, color, shape and other components of the elements that will lead to a complete and perfect solution when a person will feel connected to the landscape

B) only studying the history of the place and accumulation of large masses of people

B) knowledge about the physical environment in which a person lives

2 Aesthetic beginning of the proposed facility

A) aesthetics built on full consideration of the natural qualities of the landscape, on the exact knowledge of the functions of the proposed facility, on the exclusion of incompatible elements of the site, landscape, building project

B) emphasizing the positive qualities of the site

B) knowledge of local conditions and advantages of the site

3 Landscape design covers in general the process

A) from site selection to complete the whole project in a simple, clear and practical presentation

B) the study of the natural history and artificial landscape

B) the organization of landscape space

Option 2

1 The term "Landscape character" in relation to landscape design is:

- A) harmony and beauty of the project
- B) a clear aesthetic and functional harmony between all elements of the projected area - ground (form of relief), buildings, vegetation, water devices and human emotions
- B) an emotional response from the person

2 Ecological housing

- A) an increase in water consumption and mass waste
- B) aggressive towards the environment
- B) loyal to the natural environment and comfortable for the person

3 Integration of development in the natural environment

- A) is a model of multi-storey building, which is a radical resource-
- B) is a multi-storey row house with houses adjoining space
- B) is possible with the "model" of the territory in which the living environment is associated with nature by means of "green corridors" with recreational and transit functions

Option 3

1 Environmental Construction

- A) Multi-storey buildings and a lack of connection with the natural environment
- B) Low-rise buildings, inscribed in the natural landscape
- B) panel construction with minimal technology resources and waste treatment

2: Use the slope of the situation

- A) South, South-eastern and south-western orientation
- B) South and north-west side
- B) North and south-east side

3 Environmental Architecture

- A) solves the issues of rational use of natural resources
- B) solves the relationship between architecture and the environment
- C) the problem of architectural monuments

TEST II

Option 1

1 The mission of the environmental trends in architecture

- A) implement environmental principles in the design

B) revolutionary changes

B) to reduce adverse effects on the environment

2 Progressive environmental innovations

A) The use of recycled materials for heating and energy conservation

B) inefficient methods of construction

B) the nature of the position control

3 The term "landscape" refers to

A) design

B) landscape, countryside, picture of nature

B) Plot

Option 2

1 Anthropogenic landscape

A) formed during the natural development of the natural environment

B) not wearing traces of human activity

B) due to human activities and amended

2 Landscape architecture and its relationship to architecture

A) is devoted to the problems of the formation and management of the human environment

B) is a combination of five basic components - the Earth's surface, air and water, vegetation and wildlife

B) is the result of deliberate changes in the environment

3 How many groups of problems included in the field of landscape architecture

A) five

B) three

B) Eight

Option 3

1 Landscape architecture deals with issues

A) protection of existing natural landscapes

B) outside the human impact on the environment

B) the establishment of the technological capabilities of the environmental impact

2 Landscape Architecture deals with issues

A) patterns of use of natural materials

B) conversion of the landscape and the formation of different types of man-made landscapes, the relevant types of human activities

B) the study of mountain and lowland landscapes

3 Landscape architecture deals with issues

A) the creation of artificial landscapes to restore disturbed areas

B) the study of dynamic equilibrium between the change in the nature and anthropogenic impacts

B) the way to restore the original natural potential

QUESTIONS FOR SELF AND DISCUSSIONS

1. What is meant by the term "ecological housing"?
2. What is the current of a socio-economic development of the country, the main directions?
3. Why is the environmental stress of urban areas?
4. What is meant by the term "ecological architecture"?
5. Name the modern eco-technologies?
6. Define the concept of "architectural and landscape environment"?
7. What is the structure of ecological construction in Europe and Scandinavia?
8. What is meant by the term "ecological building" of the cities?
9. What are the materials for the design of landscape model?
10. What is a feature of the planning decisions of "new city"?
11. What is the structure of the "linear" city?
12. What is the term "EcoCity"?
13. How do you spell the concept of "satellite –city- garden"? Who is the author of this idea.
14. What are the tools of landscape design?
15. Explain the term – "tablet"?
16. How do you explain the term "technology green and grey"?
17. What are the uses of a tablet design?
18. How does appear as an aesthetic, functional and ecological components of the landscape?
19. How do you understand the term "structure of the lines on the surface of the earth"?
20. How do you understand the term "visual code"?
21. What are the objectives of the tablet?
22. What is the role of the form "wave" in the landscape design of urban space?
23. How do you understand the term "bionic form"?
24. How do you understand the term "history of the place"?
25. Name the uses of there lief situation?
26. How do you understand the term "sloping situation"? What are it s characteristics?

27. What are the tools of landscape work with the natural topography? List them.
28. What are the uses of a planar relief situation?
29. How do you understand the term "land without relief"? What are its characteristics?
30. What are the tools of landscape with artificial relief? List them.
31. List the features of the use of plant material in the landscape composition?
32. What are the modern ways to use variegated forms in the urban open space?
33. What do you mean by the term "layering of plant material"?
34. What are the components of the medium volume-spatial structure of the 1st tier?
35. From what means consists of the volume-spatial structure of 2-nd tier?
36. From what means consists of the volume-spatial structure of 3-d tier?
37. How to combine the tiers to each other and in the space of the territory?
38. List the properties of water used in the landscape environment of the city?
39. How are changed the environmental characteristics of the environment using water devices?
40. What are the new ways of using the properties of water?
41. What are the modern design trends of water devices?
42. How do you know the term "human contact with the water?" Why does it use this method?
43. List the modern materials and equipment for water devices?
44. What is the purpose of the light used in the design of objects of landscape architecture?
45. List of the direction using of lighting design in the urban environment?
46. What are the main group of lighting fixtures? What are the possibilities of sharing?
47. What are the modern material for lighting equipment?
48. What are the design features of the lighting in the city?
49. What is the aesthetic aspect of modern sculpture destination in an urban environment?
50. What is the psychological aspect of modern sculpture destination in an urban environment?
51. How does the history of the place influence to the emergence of modern sculpture in the city?
52. List the modern materials for the creation and production of modern sculpture?
53. What is the feature of art objects in the city?
54. What is the feature of art objects in the exhibition space?

Semester II:

1. What kind of the age groups should be considered when working on functional zoning of children's playgrounds?
2. What kind of equipment and why is necessary for children of younger age group?
3. What are the main materials and technologies in the organization of children's playgrounds for the younger age group?
4. What kind of equipment is necessary and why for the children of the middle age group?
5. What are the main materials and technologies for the organization of children's playgrounds of the middle age group?
6. What kind of equipment and why is necessary to teenagers?
7. What are the features of designing spaces for teens?
8. What are the main materials and technologies in the organization of children's playgrounds for teens?
9. Define the concept of "urban street"?
10. How is solved the conflict in the urban space of the street?
11. What is the functional zoning of the street space?
12. What is the role of vegetation in the visual organization of the space on the street?
13. How many ways to organize a park places on the street do you know?
14. Name the new materials for parking places?
15. What are the modern technologies of construction of parking places?
16. Explain the concept of "city square"?
17. List the modern materials for the organization of the city square?
18. What is the using of the design of the tablet of the square?
19. How has changed the function of the space area in the XXI-st century?
20. What methods of using vegetation in the organization of square space do you know?
21. How does the history of the place influence to the organization of the square space?
22. What is the role of water in the landscape transformation of the territory?
23. How do you explain the creation of recreation areas near the water?
24. What is the main danger of using a seasonal water front space?
25. How do you understand the term "sustainable development of coastal areas"?
26. What environmental materials for embankments do you know?
27. Why is necessary to terrace the coastal areas?
28. What is the structure of the plant material in the design of the waterfront?
29. What is the range of plant material under operating conditions of the waterfront?
30. What are the design features of areas with high-rise buildings?
31. For which groups of people this environment is the most affordable?

32. What conflicts in the residential environmental court must decide landscape designer?
33. What is the visual examination of the park?
34. What issues may include a social poll of the population in the park space?
35. What are the features of the design of the entrance area of the park?
36. What is the feature of the design of public park spaces?
37. Give a description of the new planting vegetation to the already existing ones? What is their primary role in the organization of the modern park environment?
38. Is there a reserve of landscape design in the design of closed park spaces?
39. What the main functional areas must be provided in the restructured park space?
40. What are the features of design of a low-dwelling areas?
41. What are the design features of the territories of townhouses?
42. Give the definition of a "public" area of cottage building? What are its features.
43. Give the definition of "collective" cottage building site? What are its features.
44. What is the specificity of natural area surrounded by cottage development?
45. What is the specificity of townhouses area?

Exercises

1. Ecological housing-social and environmental factors for its promoting.
2. Energy-saving technologies in Contemporary Landscape Architecture
3. Ecological housing
4. European eco-village
5. Architectural and landscape environment
6. The structure of the settlement
7. Architectural and landscape organization "satellite town-garden." Its authors.
8. The European idea of a new city
9. Design of the earth's surface- the tablet
10. Design surface of the earth- work with the lines on the surface: straight, parallel, intersecting (development sketches for topics and discussion with the teacher).
11. Design surface of the earth- work with the lines on the surface: wave bionic shape, signs and symbols (development sketches for topics and discussion with the teacher).
12. Design surface of the earth- work with the natural topography: direction and design solutions in the work on the natural topography (development sketches for topics and discussion with the teacher).
13. Design surface of the earth- work with artificial topography: direction and design solutions to work with relief (development sketches on the themes and discussion with the teacher).

14. Vegetation as a means of composition—especially the use of plant material (development sketches on the themes and discussion with the teacher).

15. Vegetation as a means of composition—three-dimensional arrangement (tiers) and vegetation (development sketches on the themes and discussion with the teacher).

16. Water and Water unit—water as a means of composition, materials and technologies (development sketches for topics and discussion with the teacher).

17. Light design of urban open spaces—the aesthetics and safety of the urban area in the evening, materials and technologies (development sketches for topics and discussion with the teacher).

18. Modern sculpture—the aesthetic and psychological capacities, materials and technologies (development sketches for topics and discussion with the teacher).

II semester:

1. Basic terminology and issues: sustainable environment—the concept and the context; problems of interaction between the natural and built environment, approaches to increase the natural potential of the city.

2. Landscape areas with high-rise buildings: yard area—especially the design and operation.

3. Landscape areas with high-rise buildings: yard space—materials, technology and vegetation.

4. The role of water in the organization of the urban landscape. Plastic processing techniques coast line urban ornamental ponds. Night illumination of water systems: methods and technology.

5. Fundamentals of architectural dendrology: longevity, growth rate (trees), the basic parameters for the creation of landscape composition.

6. Landscape of urban water fronts: landscape transformation of coastal areas, especially the planning situation and the water regime, the selection of plant material and its role in improving the living environment of comfort of a modern city.

7. Landscape urban water fronts: landscape transformation of coastal areas—the beach areas and sport routes.

8. Fundamentals of architectural dendrology: functions of vegetation in the urban environment—streets, squares, waterfront, yard space; the back light in the evening.

9. Landscape urban areas: landscape aspects of optimization of spaces for living.

10. Landscape of urban areas: reconstruction as a means of humanistic approach transformation of urban areas, especially the transformation of landscape the forecourt.

11. Landscape of urban areas: the problem of landscape design in the functional transformation of urban areas, the traditional methods of design spaces in front of the typical methods of formation

landings, the creation of landscape composition at levels of relief (above and below)

12. Landscape of urban areas: the use of landscaping to provide different levels of perception of vegetation, the circular movement of vehicles, features canopies, creating dividing screens using vegetation, separation and emphasizing landing.

13. Landscape of city streets: the median landscaping, scaling and formation of pedestrian spaces, marking the boundaries of pedestrian spaces

14. Landscape of city streets: the screening of pedestrian space (planters), the achievement of individual space, design forms of vegetation, natural accent in the space of the street, an accent color, and street advertising, vertical gardening, recreation, design surface of the earth.

15. Landscape of city streets: the organization of cycling and parking to public transport

16. Landscape of city streets: the differentiation of bands walking using geoplastiki, safety for all road users, the use of differently colored vegetation

17. Landscape of city streets: a secure crossing the street and travel, design of water devices, light design of city streets.

18. Conversion and restoration of the landscape with an eye to ecology and aesthetics: the problem of coastal areas, reclamation of disturbed areas.

19. Landscape of city streets: the options for street parking and techniques of placement of vegetation, the choice of the contours of street parking, street parking screening

20. Landscape of city streets: ensuring the priority areas of pedestrian traffic, the serial version of the placement of parking and recreation facilities, the use of concrete grid zone designation prohibited parking, bandwidth at location cycling

21. Landscape of city streets: the earth's surface signaling system for the visually impaired.

22. Artistic features of the park: man-made features of the landscape forms, creation of artificial soil, restoration of water bodies for the organization, the reserves of unused areas

23. Landscape of city streets: the main design goals of urban streets, the implementation of the functions of communication spaces, organizing bicycle parking in close circuit building facades, differentiation differentiated lanes.

24. Artistic features of the park: the rehabilitation and restoration of historic parks, security zoning parks, revegetation and parks adaptation to the new conditions of use.

25. Light design of urban open spaces: the concept of "comfortable living environment", goals application of light elements, "new architecture."

26. Design of children's play space (DDCS): concept, form and function, the age characteristics of the perception of the child's mind, as part of DIP education and humane attitude to the natural environment.

27. Light design of urban open spaces: the concept, form and function; variants of the vertical

distribution of light levels with examples of use.

28. Fundamentals of architectural dendrology: longevity, growth rate (trees), the main options for creating the landscape composition.

29. Design of children's play space, new materials and technologies, design features, color schemes, the need for zoning DIP and selection of plant material.

The program was drawn up in accordance with the requirements of the OS VO RUDN / FGOS.

Developer:

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