

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

**O. M. BEKETOV NATIONAL UNIVERSITY
of URBAN ECONOMY in KHARKIV**

METHODOLOGICAL RECOMMENDATIONS

for practical classes and organizing independent work
on an academic discipline

“ARCHITECTURAL DESIGN: CITY GARDEN”

*(for full-time students first (bachelor's) level of higher
education specialty 191 – Architecture and urban planning)*



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INTRODUCTION

The discipline “Architectural Design: City Garden” is intended for junior students of the major 191 – Architecture and Urban Planning. The course consists of 12 topics that consistently reveal the peculiarities of the designing process of a small landscape object – a city garden. Studying the theory and learning practical skills of designing gardens is significant for architects, because the number of such objects in cities is growing. Gardens are the most available form of organization of public recreation and are presented at different structural levels: district, micro-district garden, garden at a community center, private garden. This forms various approaches to their design, determines influencing factors. The theory of the development of gardens is constantly deepening, which contributes to the constant updating of the course, the formation of a special creative process in education.

The aim of studying the discipline “Architectural Design: City Garden” is the formation of the student’s fundamental theoretical knowledge and practical skills, which are based on systemic and ecological thinking and are necessary for solving various tasks of designing gardens in modern urban environment.

Tasks of the discipline:

- 1) mastering and testing the methods of pre-project architectural and landscape analysis;
- 2) assimilation of the stages of the creative idea formation of the garden: composition, plot, functional zoning;
- 3) study of methods of designing urban gardens.

The subject of studying the discipline is designing landscape and recreational environment of the garden.

Students should **be able** to use the acquired knowledge and skills as a means of research work and project activity;

have competences: compositional and functional research of landscape and recreational objects.

Practical classes are built on the basis of educational modeling of working project-research situations that accompany the creation of complex architectural and landscape planning and space solutions.

Practical work is performed in the form of consecutive tasks and sketches, in accordance with the main stages and purpose of practical classes, followed by their collective discussion and graphic design of their results in the form of schemes, plans of various scales and 3D models.

An individual form of studying the discipline is a series of graphic tasks that are performed on the topics of practical classes.

1 CONTENTS OF THE EDUCATIONAL DISCIPLINE BY CONTENT MODULES AND TOPICS

1.1 Formulation of the topic

The discipline “Architectural Design: City Garden” consists of three content modules, which are divided into educational elements.

The subject of the course corresponds to the basic principles of landscape and recreation design regarding the formation of structural integrity, expediency, technical support and aesthetic expressiveness. The graphic tasks that students perform according to the course program correspond to the topics of practical classes in this discipline.

The student should be aware of the techniques and methods of organizing a holistic environment that would correspond to the level of development of the material and worldview component of modern society. When designing a garden, an architect creates a harmonious and functional environment for a person to rest and restore vitality. The idea of a garden should cultivate the aesthetic taste of its visitors, be based on scientific and technical achievements, advanced technologies and materials, the most modern stylistic trends, and the most sophisticated consumer demand.

1.2 Program of academic discipline

Module 1 Architectural design: city garden.

Content module 1 Pre-project analysis and functional planning solution of the city garden.

Topic 1 Introduction to gardens’ design.

Topic 2 Pre-project analysis of the design territory.

Topic 3 Formation of the idea of a functional and planning idea of the garden.

Topic 4 Development of an interesting plot in the route of movement.

Content module 2 Compositional idea and development of the master plan of the city garden.

Topic 5 Master plan sketching.

Topic 6 Designing and drafting of the master plan, accordance to current norms and urban planning conditions.

Topic 7 Design and placement of small architectural forms in the garden.

Topic 8 Calculation of technical and economic indicators.

Content module 3 Detailing of the city garden center.

Topic 9 Design and decoration of the central part of the city garden.

Topic 10 Work on the garden landscaping idea.

Topic 11 Visualization of the garden areas.

Topic 12 Finalization of the project.

2 ORGANIZATIONAL AND METHODOLOGICAL RECOMMENDATIONS

The teaching methodology of the course “Architectural Design: City Garden” involves work in dialogue between teachers and students and is designed for 60 hours of practical classes and 45 hours of individual work.

To understand the structure of the educational process and the connection between practical classes and individual work, this section is presented in the form of structural and content tables, which include both information about the content, structure and time distribution for individual topics and types of classes, as well as brief recommendations for performing practical tasks and organization of individual work.

2.1 Plan and content of tasks

Table 1 – Structure of the organization and content of practical and individual classes

Topic	Contents (plan)	Number of aud. hours**
1	2	3
Module 1		
Architectural Design: City Garden		
Content module 1		
Pre-project analysis and functional planning solution of the city garden		
Topic 1 Introduction to gardens’ design	<ol style="list-style-type: none"> 1. Familiarization with the course project assignment. 2. Acquaintance with the specifics of gardens’ design. 3. Acquaintance with the requirements for selecting a plot for design. Approval of the design site. 4. Preparation of topographical map for work, scaling, adjustment 	4
Individual work 1 Analysis of prototypes	<ol style="list-style-type: none"> 1. Analysis of the compositional and functional structure of modern gardens. 2. Determination of the basic principles of designing of modern gardens 	2
Topic 2 Pre-project analysis of the design area	<ol style="list-style-type: none"> 1. Analysis of the landscape and compositional planning situation. 2. Analysis of the functional organization of the design area. 3. Analysis of transport accessibility to the design object. 4. Forming conclusions about the positive and negative features of the site 	4

Continuation of table 1

1	2	3
Individual work 2 Work on analytical schemes	1. Drafting the analytical schemes, work on their graphic presentation	2
Topic 3 Formation of the idea of a functional and planning solution for the garden	1. Study of garden zoning schemes. 2. Search for harmonious placement and combination of functional zones with different types of activity and noise load. 3. Formation of the idea of main and secondary routes on the territory of the garden	4
Individual work 3 Creating the basis for a future project	1. Modeling of a 3D relief structure in software. 2. Determination of the possibility of organizing the selected functions on the terrain	2
Topic 4 Development of an interesting plot in the route of movement	1. Search for the general idea, style and theme of the garden. 2. Reflection on the drama of the plot. 3. Studying the principles of creating the desired plot. 4. Studying the means of constructing a plot and directing visitors along the created route	8
Individual work 4 Sketching of zones in the route	1. Selection of analogues of individual zones. 2. Sketching visual views in the route	4
Content module 2		
Compositional idea and development of the master plan of the city garden		
Topic 5 Master plan sketching	1. Acquaintance with the current standards for planning and equipping of gardens. 2. Sketching of the garden's master plan. 3. Placement of infrastructure elements	4
Individual work 5 Work with regulatory documents	1. Selection and systematization of current standards for garden design	2
Topic 6 Designing and drafting of the master plan, accordance to current norms and urban planning conditions	1. Recalling of the rules for the design of the master plan of the landscape object. 2. Drafting of the drawing in Scale 1:500. 3. Detailing of the master plan. 4. Checking the drawing	8
Individual work 6	1. Work on the graphic presentation of the master plan of the garden	4
Topic 7 Design and placement of small architectural forms in the garden. Sectional drawing	1. Development of the idea of small architectural forms. 2. 3D modeling of small architectural forms. 3. Sectional drawing	4
Individual work 7	1. Selection of images that explain the principle of arrangement, decoration, landscaping of all areas of the garden	2

Continuation of table 1

1	2	3
Topic 8 Calculation of technical and economic indicators	<ol style="list-style-type: none"> 1. Calculation of technical and economic indicators. 2. Calculation of the balance of the territory. 3. Drafting of explications and explanations to the master plan 	4
Independent work 8 Work with tables	<ol style="list-style-type: none"> 1. Setting up calculation tables and drawings on sheets 	2
Content module 3 Detailing of the city garden center		
Topic 9 Design and decoration of the central part of the city garden	<ol style="list-style-type: none"> 1. Development of the idea and composition of the central part of the garden. 2. Hand detailed sketching of the central part of the garden in Scale 1:200. 3. Selection of small architectural forms and equipment. 4. Selection of colors for small architectural forms. 5. Development of a detailed sketch of the site of the master plan in Scale 1:200 	8
Individual work 9 Finalization of the master plan of the central part of the garden	<ol style="list-style-type: none"> 1. Analysis of dimensions, characteristics of equipment and small architectural forms proposed in the sketch. 2. Clarification and completion of the master plan 	4
Topic 10 Work on the garden landscaping idea	<ol style="list-style-type: none"> 1. Formation of the composition of groups of plants in the garden. 2. Selection of assortment of plants. 3. Placement of their symbols on the master plan. 4. Completion of a dendrological drawing of the central part of the garden Scale 1:200 	4
Independent work 10 Work with information	<ol style="list-style-type: none"> 1. Preparation an assortment list of plants 	2
Topic 11 Visualization of the garden areas	<ol style="list-style-type: none"> 1. 3D modeling of the designated areas of the garden using software. 2. Selection of viewpoints of the zones in the route of their visiting 	4
Independent work 11 Work on images	<ol style="list-style-type: none"> 1. Visualization of several areas of the garden 	2
Topic 12 Finalization of the project	<ol style="list-style-type: none"> 1. Placement of all drawings, tables, information and images on sheets. 2. Writing a note to the project 	4
Independent work 12 Design of the album	<ol style="list-style-type: none"> 1. Grouping of all drawings into a single album 	2

Examples of works are given in Appendix A

2.2 Methodical recommendations for implementation practical and individual works

Topic 1 Introduction to gardens' design

The design of gardens is fundamentally different from the design of linear landscape objects such as embankments and boulevards and parks, which are significantly superior in size of area, ecological significance, and possible functional diversity.

A garden is a small landscape object (3–7 ha) that is intended for the organization of public recreation. The main function in the garden is to contemplate the beauty of nature, sometimes small sports areas, playgrounds, etc. are added. Usually, a large number of decorative, fruit trees are represented in the garden, special attention is paid to the formation of plant groups, flower beds, and quiet rest areas.

The site for designing the garden must be chosen in a place with good pedestrian and transport accessibility. Often, gardens become recreation and decoration at a public center, or are placed in the middle of residential neighborhoods. Ravines, steep slopes, too shaded areas are not suitable for organizing a garden.

Task. According to the result of the received information, students choose a plot suitable for the garden in the structure of the settlement project, or in urban structure. The site is discussed and evaluated for feasibility and the possibility of organizing a garden. After approval, the student makes an orthophoto plan of the area from a satellite map, obtain a topographical map in scale 1:1000 (2000) or 1:500 and prepare it for work: place it in the software at the correct scale, cut, etc. It is advisable to visit the design site in person and take a photo-fixation of the site to identify its features, the existing structure, the existing state of landscaping and equipment.

Individual work 1 Analysis of prototypes

It is necessary to select and analyze 3–4 examples of modern realized gardens. The analysis can be developed in the form of a presentation or composed on A3 sheets. For each example, it is necessary to find and analyze the plan of the object (its functional zoning, compositional structure) and the image in route of visitors. The student should describe his research and determine which techniques were most interesting in the organization of this landscape object.

Topic 2 Pre-project analysis of the design area

The first step in designing a garden is to collect data about the existing state of the design site and its surroundings. A detailed analysis of the area makes it possible to answer the question: which project proposals are possible and appropriate, as well as how many of these ideas can be implemented.

The analysis of the area takes place in the following directions:

– “*Analysis of the landscape situation*” reveals the natural features of the territory: the shape of the relief (revealed through the image of horizons, edges, soles of slopes, thalwegs, watersheds), the presence of water objects and green areas (it is worth dividing the green areas into open: lawns, meadows and closed: trees and shrubs;

– “*Compositional analysis*” reveals the relationship of elements in the city: the main spatial and compositional axes (axes of streets, natural elements: reservoirs, thalwegs, capes, the entire landscape object); composite nodes formed at the intersection of these axes (specific emotional spaces that are felt when staying in their zone). Axes and composite nodes are ranked depending on their status (the intersection of more significant axes forms a larger composite node); socially important buildings, as points of attraction (sacred buildings, educational, administrative institutions, etc.); specific buildings that are dominant in the composition (very large or tall), screens (very long), accents (small, but have an expressive shape, colors). Sometimes it is worth highlighting their axes as well;

– “*Functional analysis*” helps to determine the main recreationists in the design area, suggests which functions are better to include in the structure of the landscape object according to their composition, where these functions are better to be placed. It also helps to predict the mode of visiting a landscape object;

– “*Transport analysis*” helps to determine the main flows of recreationists who use public, personal transport or visit the facility on foot. Depending on the category of roads, placement of public transport stops (their number) near the object, it is possible to determine entrance zones, development and structure of the park, possible placement of service roads, parking lots, etc.

Task. Students develop analytical schemes, highlight graphically all the necessary elements. To implement schemes, not only the territory of the object is analyzed, but also the area around it (200 –300 meters from all sides of the design area). First of all, the boundaries of the design object are drawn to the scheme. The scale of the scheme does not matter. Sometimes, for plots with a simple structure, schemes can be combined. According to the results of the analysis, the student makes conclusions about the positive and negative features of the design area, make the first considerations regarding his project.

Individual work 2 Work on analytical schemes

Students should analyze the current trends in the design of analytical diagrams and schemes, choose the appropriate symbols, color scheme and presentation for each of them, complete the design of the schemes in the software and set them on A3 sheets.

Topic 3 Formation of the idea of a functional and planning solution for the garden

The zoning of the city garden depends on the natural conditions, the urban environment, the assessment of the location of the public transport stops closest to the design object and the functional purpose of the garden itself. Functional zoning determines the location of different zones of the city garden relative to each other. When placing different elements on the territory of the object, it is necessary to keep in mind that in different seasons the intensity of their use is different.

The city garden includes the following areas:

- entrance area with main and secondary entrances. The main entrances must be located near public transport stops and in the places of the main possible flow of visitors;
- zone of cultural and household services (food and trade points, public toilets, game and sports equipment rental points, medical center, etc.);
- zone of active recreation (entertainment and sports facilities, playgrounds). The main architectural facility often locates near the entrances or in the main social center;
- the quiet recreation (strolling) zone should be distant from entertainment and sports facilities;
- a play area for younger and middle-aged children, within walking distance from the entrances to the garden, while excluding its transit crossing and proximity to transport routes;
- the utility zone (for garden maintenance, inventory storage, cleaning and watering machines, parking lots, etc.) is located on the periphery of the park with a mandatory exit to the adjacent streets.

All functional areas should be connected with each other by well-planned alleys and paths. An important role is played by vegetation, which forms landscape compositions.

For the concentration of visitors, an unloading inter-zonal area is provided, which is a node of unification of functional zones. Located at the entrance to the park, it can be the beginning of the main alley, as well as the location of visitor service facilities: trade, food, information, etc. Such a solution allows you to go to any zone of the park without first crossing another, which will avoid the transit traffic of vacationers. The entrance square can be a place for mass events.

The integrity of the garden composition is achieved by the interconnection of elements, united not only by the general compositional idea, but also by a single compositional axis. In the garden, the role of the main axis of the composition is performed by the main route. The simpler the connection between the elements, the better the artistic design of the entire garden is perceived. The main walking route

should cover all functional areas of the city garden. Alleys emphasize the planning structure and direct visitors to the main compositional and planning nodes.

Task: Clause 1 Functional zoning of the territory.

Based on the performed analysis of the territory, students should propose one or several solutions for the functional zoning of the territory and the main directions of movement in the garden. The task is performed in the form of sketch graphics on a topographical map in scale 1:500 or 1:1 000.

Individual work 3 Creating the basis for a future project

It is necessary to create a 3D model of the terrain in software. After that, draw conclusions about the possibility of placing zones and adjust functional zoning. The image of the model is placed on an A3 sheet and presents for discussion.

Topic 4 Development of an interesting plot in the route of movement

The architectural and planning composition of the territory of the city garden should be subordinated to the main goal – creation of comfortable conditions for recreation of the population.

Historically, two styles have developed in landscape design: regular and landscape. The regular style is characterized by the geometrizing of the plan, alleys and paths, regular planting of trees. A regular composition is formed on the basis of the simplest geometric shapes that are clearly perceived.

The landscape style is characterized by the natural layout of alleys, free contours of meadows and ponds. The landscape is built according to the natural principle, but does not copy the natural landscape.

One of the main goals of landscape art is the harmonious organization of space. Space in landscape art is classified depending on size into landscape and view.

The garden should consist of open and closed spaces. Open spaces include water surfaces and lawns; closed space consists of green massifs and groups. The balance of open and closed spaces determines the composition and artistic appearance of the garden.

In addition to harmonious functional zoning, the formation of an interesting plot is important. A walk through the garden should be read by visitors like a book or a movie, which consists of differently colored space elements. The plot can be funny, lyrical, adventurous, etc., and the pictures change their emotional color as they move. Myths, legends, books or paintings often become the basis for the plots of landscape objects.

Different techniques are used when forming the plot:

1) alternation of spaces of different sizes: a wide-open space (like a lawn) creates a feeling of peace and freedom, and a narrow long space (alley) – a feeling of a path, the need to move towards a goal;

2) alternation of shaded and illuminated areas: the shadow performs a feeling of fear, overcoming obstacles, and the illuminated space – happiness, the joy of liberation;

3) alternation of different landscape forms;

4) the use of various forms of landscaping;

5) formation of accents in the route of movement (sculptures, dominant forms, etc.).

The plot is developed in such a way as to create the greatest emotional impression. At the same time, it is important to maintain the balance of spaces and not to oversaturate the object, to form emotional pauses between active zones. It is also worth remembering about the development of the plot and placing the zones in such a way that they go in ascending order, because when placing the most expressive zone at the very beginning, the others, compared to it, will not be interesting to contemplate.

Task: Clause 2 Formation of the plot of movement on the territory of the garden.

On the basis of the idea of functional zoning, it is necessary to imagine the plot of movement on the territory of the garden. It can be developed for both main and secondary route of movement and should be presented in a series of sketches depicting a sequential change of spaces. The plot should be developed from the main entrance and end with a culmination – the most emotional space.

Topic 5 Master plan sketching

The development of a sketch of the general plan of the garden should be based on the study of existing norms for the design and equipping of landscape objects.

The size of a city garden can vary from 3 to 5 hectares. The service radius of the city garden should be within 700–800 m, which is 5–10 minutes walking distance. The dimensions of the garden when designing in free territories are calculated from the norm of at least 60 m² per visitor. The maximum permissible simultaneous number of visitors to the garden area is 100 people/hectare.

Free mode of use of green spaces without harming their condition is possible only if the density of visits is within the range of 8–10 people/hectare. At a density of 75–100 people/hectare it is necessary to introduce restrictions on the movement of visitors directly near the tree plants. At the same time, the free mode of use is permissible only on lawns with a special, trampling-resistant lawn. For the density of visits over 100 people/hectare the movement of visitors must be strictly limited by paths, alleys and squares.

The list of garden landscaping elements should include: solid types of paths and squares paving, elements of connecting surfaces, greening, benches, bins and

waste containers, architectural and decorative lighting equipment, bicycle parking equipment.

In the general balance of the territory of city gardens, the area of green spaces should be accepted at least 70 %, playgrounds and paths – 13–15 %, buildings – 5–7 %.

The area of water objects should be 1–2 % of the total territory of the park.

Children’s playgrounds in the structure of the garden are designed from 50–80 m² to 200–300 m². They should be isolated from alleys with dense traffic, driveways. Playgrounds for different age groups of children can be combined into children’s complexes.

It is recommended to arrange an area for mass events with an area of at least 300 m², with zones for street musicians, artists, and entertainers.

The arrangement and equipment of sports playgrounds is carried out in accordance with standard requirements.

The length of pedestrian ways from parking lots to the most distant objects on the territory of the city garden should be not more 450–500 m. The number of parking places is counted by the norm 4 parking places per 100 visitors. The area of the parking lot is counted by the norms 25 m² per 1 car space.

Table 2.1 – Percentage ratio of functional zones of the garden

Functional areas	Approximate area zones, percentage of the total area
Zone of cultural mass events	20
Quiet recreation zone	60
Children’s zone	5
Sports area	14
Utility zone	1

Table 3 – Balance of territories of city garden zones

Zones of the city garden	Territory under buildings, alleys and squares, a percentage of the total area	The territory is occupied by green areas, the percentage of total area	
		Trees and shrubs	Lawns and flower gardens
Zone of cultural and mass events	40	35	25
Sports area	40	35	25
Children’s area	20	50	30
Quiet recreation area	10	60	30

Task: Clause 3 Master plan sketching.

Students have to develop a sketch of the master plan of the garden in hand graphics. The work is performed on a topographic map in Scale 1:500 or 1:1000. When performing, it is necessary to correctly depict the size of alleys, squares, buildings, zones, groups of trees, small architectural forms, etc. The dimensions of the garden areas must be drawn according to urban planning norms.

Individual work 5 Working with regulatory documents

Compile into a text document the norms necessary for design from DBN B.2.2-12:2019 Planning and development of territories and DBN B.2.2-5:2011 Territory landscaping. Determine the required number of parking places and its area.

Topic 6 Design and drafting of the master plan, accordance to current norms and urban planning conditions

Organization of alleys, squares, passages.

The network of alleys should ensure the convenience of movement of visitors on the territory of the garden. Alleys should also be laid in such a way to present the natural values of the landscape, to perform the viewing of small architectural forms for visitors.

In determining the direction, width, turns, rhythm of pedestrian stops of each alley, the aesthetic features of the territory should be taken into account, by creating both short and deep long perspectives, as well as open large spaces.

Table 4 – Standards of width and capacity of alleys and driveways

Types of park alleys and driveways	Width, m	Intensity of pedestrian traffic, 0,75 people/year
Main pedestrian alley	6–8	up to 600
Secondary alleys	3–5	up to 300
Additional alleys and paths	0,75–3	up to 300
Bicycle paths	1,5–2,5	up to 300
Roads for horseback riding	2,5–5,5	up to 300
Utility driveways	3,5–5,5	up to 300

The central or main alley, which connects all the main functional zones and compositional dominants, can be the compositional axis of the entire object.

In general, alleys are divided into main, interzonal, circular and internal. The main alley is usually formed by the row of trees from both sides what create a simple rhythm and direct to move to the main square. Its width mainly ranges from 12 to 20 m (between the axes of the rows of trees). The main avenue connects the main

entrance with the central square or with a large architectural object (exhibition pavilion, cinema concert hall, etc.). Its width should provide not only a convenient approach to the architectural structure, but also allow it to perform the walking function without restrictions. In the middle or along the main alley the flower beds are usually planted. They have size from 1 to 2,5 m wide and from 3 m to 25 m long. The main alley, in addition to creating comfortable conditions for walking, emphasizes the compositional importance of this element in garden's system and its significance in combining with the compositions of the adjacent territories.

The ring alley provides a convenient pedestrian and transport connection between all functional zones and is the second most important after the main alley. Built on the edge of a slope, it gives an opportunity to perform the distant perspectives of the neighboring territories. The width of the ring alley should be at least 6–8 m.

Interzonal alleys connect the ring alley with the central square of the park, ensuring an even distribution of park visitors between functional zones. At the same time, they serve as boundaries between separate zones.

The bends of the alleys can be used to create various accents, which can be a single beautiful tree, a group of trees, a gazebo, a sculpture. When crossing or cutting paths, it is necessary to make their corners rounded, which prevents the lawn from being trampled. The radius of rounding must be at least half the width of the alley.

The longitudinal slope of pedestrian alleys is projected within 3 %, park roads – 0,5–6 %.

Straight alleys are used to emphasize the solemnity and grandeur of important accents of the composition straight alleys are used. To create beautiful and unexpected viewing points during walks wavy alleys are used.

Individual work 6 Work on the graphic presentation of the master plan of the garden

It is necessary to investigate modern approaches to the drafting of master plans, choose a color scheme of the drawing and complete its execution according to all the requirements in the software. Save the drawing in a scale of 1:500 or 1:1 000 on a sheet of A1 or A2 format with a stamp and a frame, add annotations and explanations.

Topic 7 Design and placement of small architectural forms in the garden. Sectional drawing

Small architectural forms in the garden include gazebos, bridges, pergolas, fences, flower pots, garden furniture, garden sculptures, swings, playgrounds, garden fireplaces, etc. They can be made of various materials: wood, metal, stone, brick,

plastic, etc. Almost all small architectural forms have a functional purpose, and also play an important role in the decorating of the garden.

Often the heroes of the landscape are groups of characters: sculptures of gnomes, birds, fairy-tale heroes. A sundial or Japanese-style lamp decoration can be an extremely effective way to fill the space. Any object, skillfully played with the help of plants, will certainly be a bright decorative accent.

Gazebos remain the most popular from a functional point of view. Located in the central zone, it can perform the role of a stage, a zone for cultural events. Larger pavilions can serve as outdoor mini-concert halls, cinemas, and summer mini-cafes. Also, glass greenhouses look especially beautiful in the garden, which give an opportunity to admire the plants even in winter.

Task. Develop a 3D model of several small architectural forms in software. Develop a section drawing of the garden.

Individual work 7 Selection of images that explain the principle of arrangement, decoration, landscaping of all areas of the garden

It is necessary to choose a prototype (image) of the arrangement of each of the garden zones, which will demonstrate the architectural and landscape filling of the zone, the appearance of groups of plants, the color scheme, etc. Images are placed next to the general plan and must have the same numbering as on the drawing. Compile the assignment on an A2 or A1 sheet.

Topic 8 Calculation of technical and economic indicators

The project balance of the territory is compiled on the basis of the master plan. According to the scale of the master plan, the total area of the park and the territory occupied by green spaces are determined. After that, the length of driveways and alleys is calculated. Knowing the width of driveways and alleys of various purposes, determine the paving area. Direct measurement on the general plan determines the area occupied by sports, children's playgrounds, as well as recreation areas. Determine the building area. All data are summarized in the table of project balance and technical and economic indicators.

Table 5 – Technical and economic indicators

Name	Measurement Units	Number	Percentage of total area
1	2	3	4
The number of visitors	Thousands of people		
The total area of the territory	ha		
Building area	ha		
Area of roads and driveways	ha		
Area of alleys, playgrounds	ha		
Landscaping area	him		

Continuation of table 5

1	2	3	4
Number of trees	n		
Number of bushes	n		
Area of lawns	ha		
Area of flower gardens	m ²		
Water reservoirs	m ²		
Other territories	ha		

Individual work 8 Work with tables

Students draw up and place next to the drawing of the master plan calculations of technical and economic indicators, the balance of the territory, annotations and explanations to the master plan.

Topic 9 Design and decoration of the central part of the city garden

The design of the central part of the garden needs more attention and detail. Often, the central part of the garden is not only a beautiful decorated, but also has unique benches, specific forms of lighting, fountains, etc., present only in this zone. Also, special attention is paid to the selection of paving, which can form various patterns. The central part of the garden always includes numerous flower beds, the most developed groups of shrubs, sculptural compositions, etc. Often, its structure includes reservoirs or fountains.

Pools are placed on open areas, where, framed by a floral pattern or lawns, they act as large mirrors. For cascades, a change in terrain is required.

Channels are arranged to supply water to fountain and cascade devices or to drain used water from them. Sometimes canals serve as a means of communication between separate bodies of water over the shortest distance. The canals have a clear geometric shape and, together with fountains, cascades, bridges and transitions, make up an interesting composition.

Ponds are created in the valleys of small rivers, streams or ravines by arranging dams with regulation and with a spillway of excess water. Winding paths are laid along the banks of the ponds, viewing platforms, gazebos, cafes, and artificial fences are arranged.

The shape of a reservoir can be: compact, curved, complex (with bays, peninsulas, capes, islands, with a system of interconnected reservoirs).

Particular attention should be paid to the formation of the outline of water bodies, which should be harmoniously coordinated with their size. Do not chop the shoreline pattern of a large body of water, as this can cause a loss of scale. When forming the coastal vegetation of water bodies, three main principles are used: the

creation of continuous coastal massifs, the creation of scenes, the creation of meadows.

A special mood is created by flowing water – streams, waterfalls, cascades, fountains. It should be taken into account that dams, bridges, spillways can be not only hydraulic, but also architectural structures.

Task: Clause 3 Sketching the central area of the garden.

With the help of manual graphics, develop a detailed sketch of the central area of the garden with views from different visual points. Materials, equipment, small architectural forms and landscaping should be selected and depicted on the sketch. The sketch of the master plan is made on a topogeodesical map in scale of 1:200, sketches are made in a convenient for student technique.

Individual work 9 Finalization of the master plan of the central part of the garden

To clarify the sketch of the master plan, it is necessary to select similar equipment that already exists on the market and analyze its dimensions and characteristics. Perform clarifications and complete the design of the master plan in the software in accordance with all requirements and current regulations. Place the drawing on a scale of 1:200 on a sheet of A3 or A2 format.

Topic 10 Work on the garden landscaping idea

The leading role in the formation of garden and park compositions is taken by tree-shrub vegetation, from which massifs, curtains, groups, solitaires, alleys, boskets, hedges, green walls, borders, and vertical landscaping are formed. They can have both regular and natural planning.

Vertical landscaping is one of the affordable and expressive means of decorating park structures. With the help of trellises and pergolas, climbing plants appear in the form of various arches, canopies, walls and corridors. Hedges are formed with vertical landscaping, retaining walls and fences are landscaped, slopes are decorated, and small architectural forms are decorated.

Rockeries and rock gardens are among the elements of the garden and park landscape that add variety to the natural landscape composition and create an accent in the park environment.

Floral design occupies a prominent place in various architectural and artistic solutions. Along with tree and shrub groups, lawns, water bodies, sculpture, flowers form the aesthetic appearance of gardens. With their help, planning nodes of the park are drawn up: parterres, views, places of rest, accentuating decorative ponds, lawns, and forest edges.

Task: Work on the idea of landscaping the garden.

Develop a composition for placing groups of plants in the garden. If necessary, create sketches. Select an assortment of plants and place their symbols on the master plan. Make a dendrological drawing of the central part of the garden in M 1:200 and place it on an A3 sheet.

Individual work 10 Working with information

On the basis of the collected information, draw up a list of the assortment of plants and place it on a sheet of A3 format.

Topic 11 Visualization of the garden areas

The presentation of images of garden areas provides the most complete idea of its appearance after implementation. Also, modeling makes it possible to check the proportions of spaces from the level of human vision, the proportions of elements, the comfort of the environment, the adequacy of saturation with various forms. Modeling of garden areas is done with the help of any software convenient for students, because it does not have clear rules for submission or execution. The main requirement for modeling is a true representation of the relief and its markings, the slopes of the alleys, and the dimensions of the objects.

Task. Develop a 3D model of several areas of the garden in software for further visualization and imaging.

Individual work 11 Work on images

It is necessary to complete the work on the image and visualization of the selected views. The images should be from a “bird’s eye” view and at the level of human vision. Compose images on A3 sheets.

Topic 12 Finalization of the project

Completion of work on the project includes checking all drawings, correcting errors and mistakes. Upon completion, a holistic assessment of the project is performed for all its components. Also, a descriptive text part is added to the project, which includes a description of all stages of work, ideas and implementation, as well as all calculations.

Task. It is necessary to complete the work on the drawings and the text part of the project.

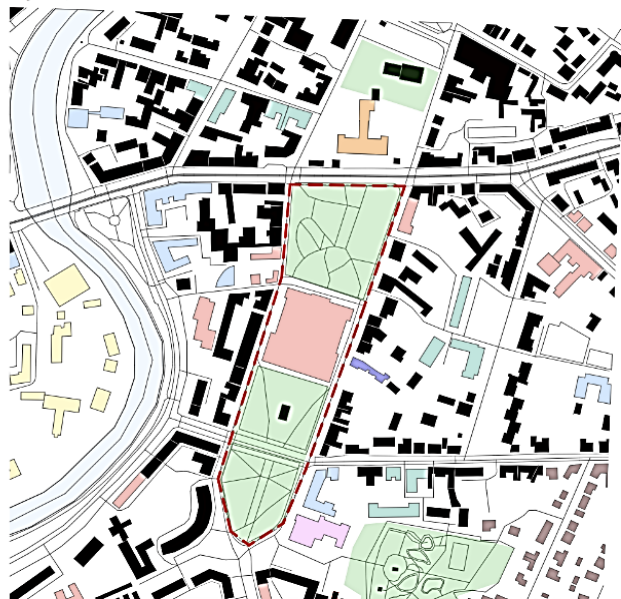
Independent work 12 Designing an album.

LIST OF RECOMMENDED SOURCES

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4. Harris C. Time-Saver Standards for Landscape Architecture / Charles Harris, Nicholas Dines. – New York (USA) : McGraw Hill, 1997. – 230 p. – DOI 9780070170278.
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8. Cannon Ivers B. 250 Things a Landscape Architect Should Know / B. Cannon Ivers. – Basel (Switzerland) : Birkhauser, 2021. – 521 p.
9. Oudolf P. Planting: A New Perspective / Piet Oudolf, Noel Kingsbury. – Portland (USA) : Timber Press, 2013. – 280 p.

APPENDIX A

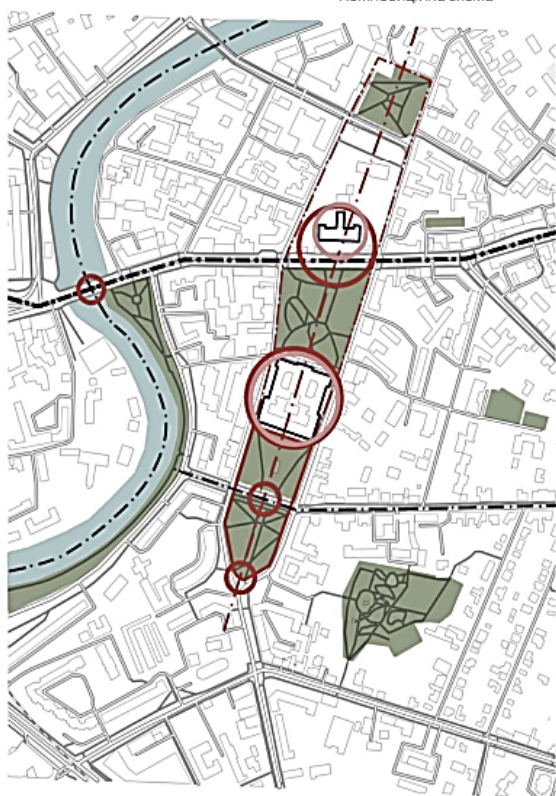
Функціональний аналіз



- - рекреаційні зони
- - заклади освіти
- - бібліотека
- - Заклади культури
- - Готель
- - Медичні заклади
- - адміністративні будівлі
- - приватна багатоповерхова забудова
- - багатоквартирна житлова забудова з комерцією на першому поверсі

a

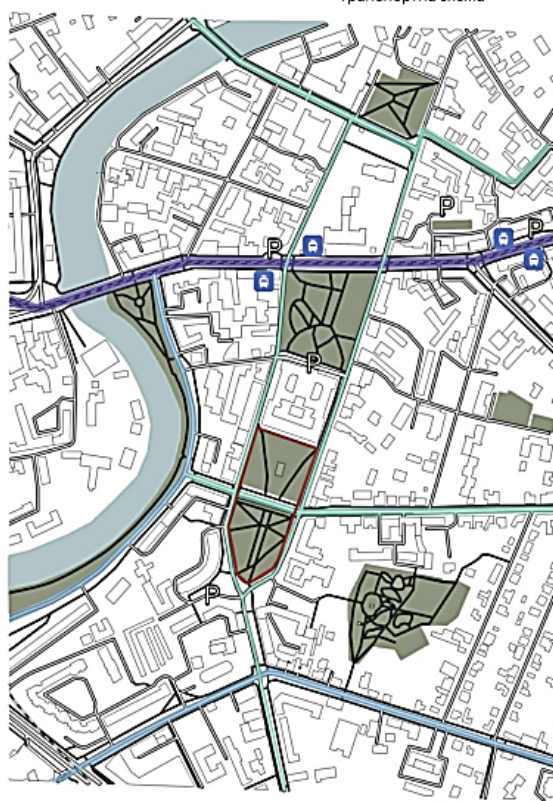
Композиційна схема



- - Річка
- - Зелена рекреаційна зона
- - - - Композиційна вісь
- - - - Вісі вулиць
- - Композиційні вузли (соціально значимі об'єкти)
- - Композиційні вузли перетину вісей
- Соціально значимі об'єкти
- Контури ділянки проєктування

b

Транспортна схема



- - Річка Харків
- - Зелена рекреаційна зона
- Контури ділянки проєктування
- - Трамвайна зупинка
- - - - Трамвайні шляхи
- P - Паркінги
- - Вулиця міського значення
- - Вулиця районного значення
- - Вулиця мікрорайонного значення

c

Figure A.1 – Sample design of analytical schemes: a – scheme of functional zoning of the territory; b – composition and landscape analyzes of the territory; c – transport analyzes

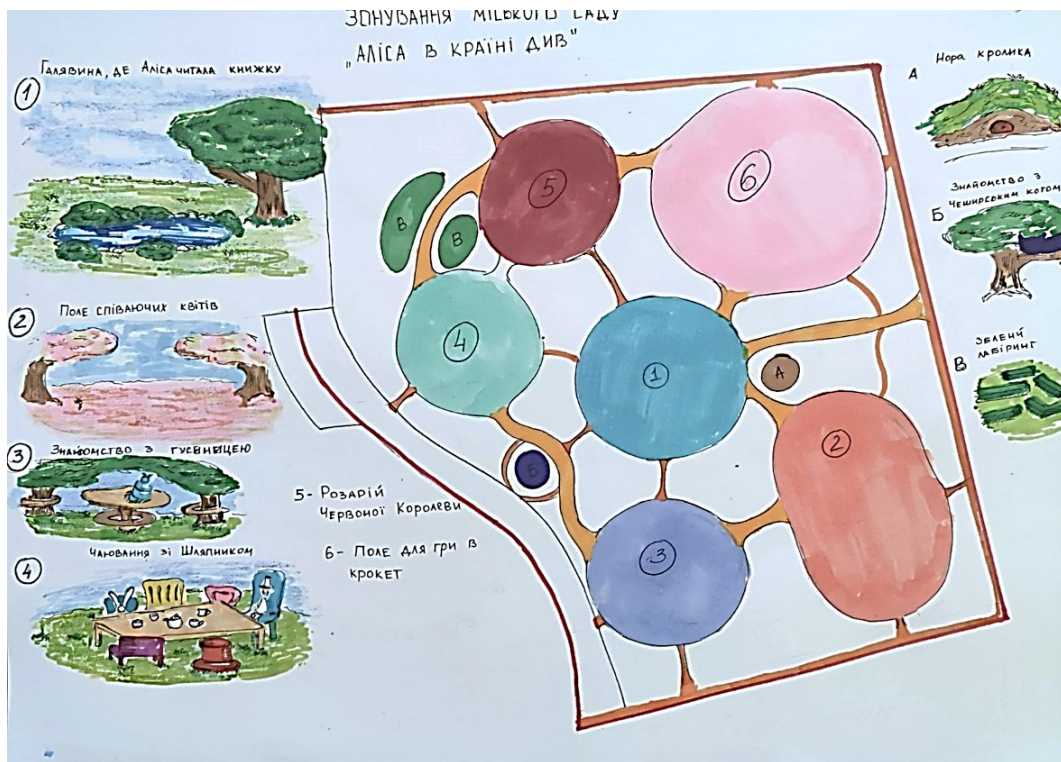


Figure A.2 – Scheme of functional zoning of the garden with sketches along the way



Figure A.3 – Sketches by the route

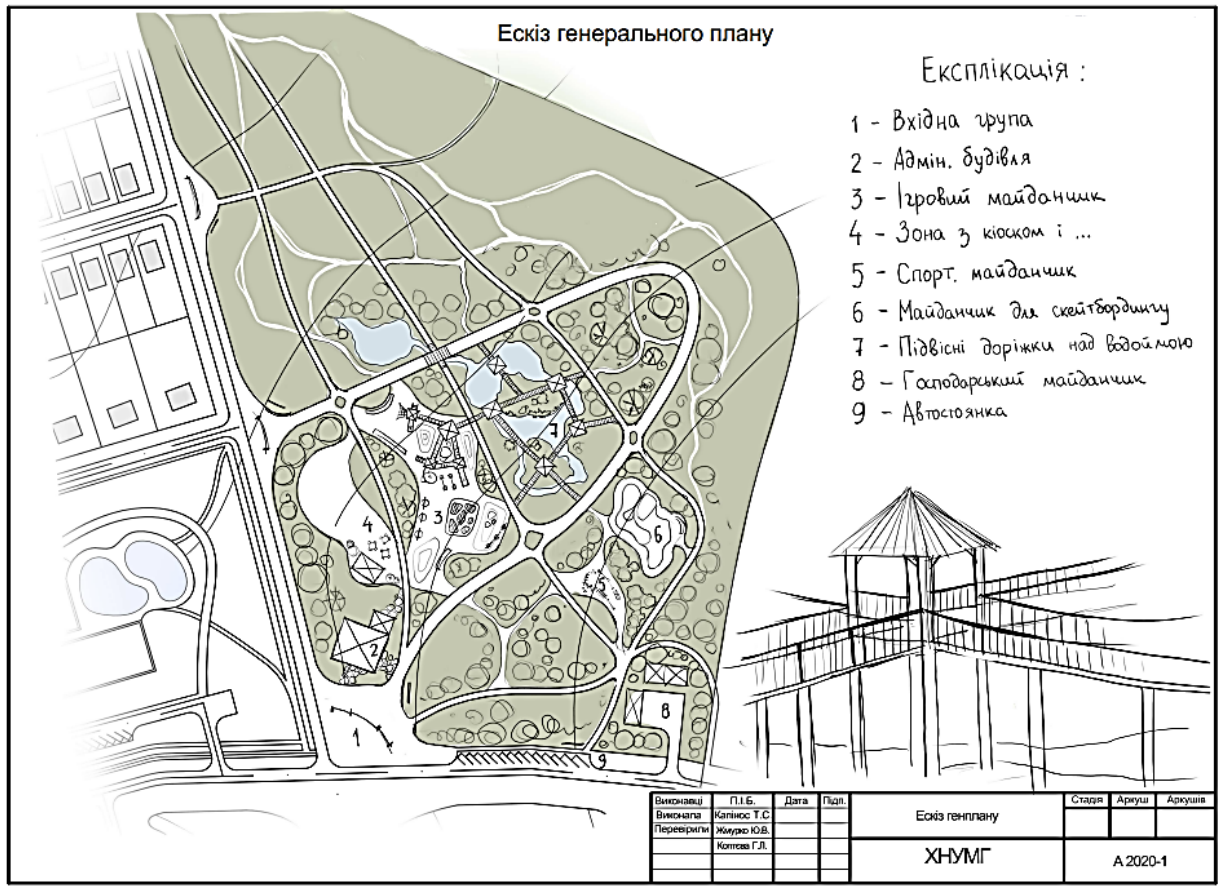


Figure A.4 – An example of a master plan sketch



Figure A.5 – Graphic design of the master plan (fragment of the drawing)

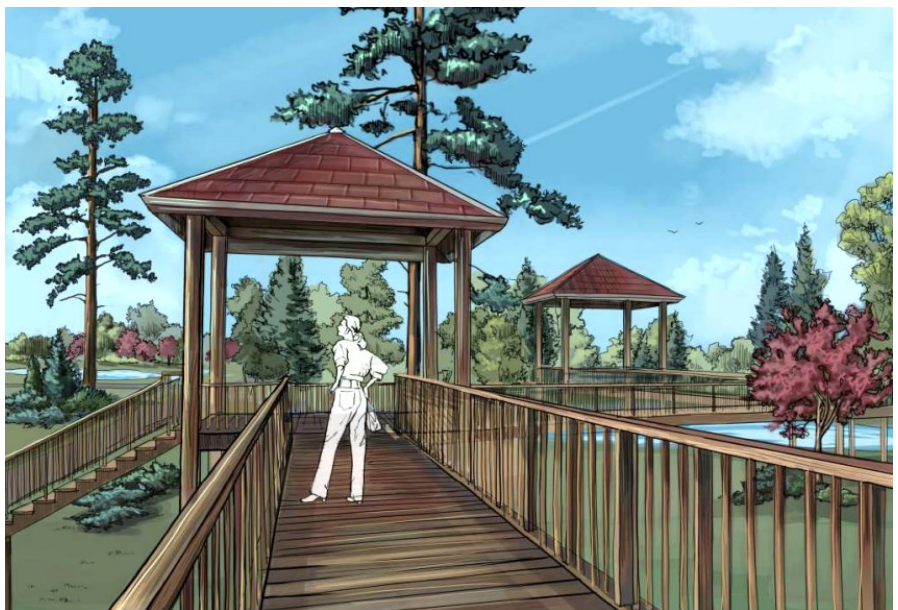


Figure A.8 – Visual views by the route

Асортиментна відомість рослин									
№	Позн.	Зображення	Українська назва рослини	Латинська назва рослини	Розмір, м	Форма крони	Екологічні вимоги	Періодичність цвітіння	Кількість
1			Клен польовий	<i>Acer campestre</i> 'Postelense'	H=8-10 м d=5-8 м	Нерегулярна, рідка, округла		-	20 шт.
2			Клен червоний	<i>Acer rubrum</i>	H=10-15 м d=5-10 м	Конічна або округла		-	9 шт.
3			Вільха сіра	<i>Alnus incana</i>	H=до 20 м d=4-8 м	Асиметрична		-	9 шт.
4			Багрянник японський	<i>Cercidiphyllum japonicum</i> 'Pendulum'	H=5 м d=4 м	Плакуча		-	5 шт.

Умовні позначення:

- світлолюбиві рослини;	- посухостійкі рослини;
- популіньолюбиві і популіньовитривалі рослини;	- вологолюбиві рослини;
- тіньовитривалі рослини;	- рослини стійкі до умов міського середовища і промислових викидів.

Виконавці	П.І.Б.	Дата	Підп.	Асортиментна відомість рослин	Стадія	Аркуш	Аркушів
Виконала	Капінос Т.С.						
Перевіряли	Жайро Ю.В.			ХНУМГ	А 2020-1		
	Котсава Г.Л.						

Figure A.9 – Assortment list of plants

Електронне навчальне видання

Методичні рекомендації
до проведення практичних занять та виконання самостійної роботи
з навчальної дисципліни

«АРХІТЕКТУРНЕ ПРОЄКТУВАННЯ: МІСЬКИЙ САД»

*(для здобувачів першого (бакалаврського) рівня вищої освіти
денної форми навчання
спеціальності 191 – Архітектура та містобудування)*

(Англ. мовою)

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ГРИШИНА Вікторія Сергіївна

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Комп'ютерне верстання *Є. Г. Панова*

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