

MINISTRY OF EDUCATION AND SCIENCE OF RUSSIA

Federal State Educational Institute of Higher Education
"Moscow Architectural Institute (State Academy)"

"CONFIRM"
Rector of MARCHI
academician D.O.Shvidkovskiy

THE WORK PROGRAM OF THE DISCIPLINE (MODULE)

Architectural Projects

B1.O.03

Assigned to the department:	Departments of MARCHI
Educational Level:	Bachelor
Specialization:	07.03.01 Architecture
Basic professional educational program of higher education:	Architecture
Form of study:	full-time
Hours/credits:	1332 hrs (37 credits)

The work program for a discipline (module) is based on:

1. Federal State Educational Standard for Higher Education 07.03.01 Architecture, approved by the order of the Ministry of Education and Science of Russia No 509 of 08.06.2017
2. Curriculum for the specialization 07.03.01 Architecture, approved by the Academic Council of MARCHI. Minutes No 6-20/21 of 23.06.2021.

The work program of the discipline (module) was considered and approved at by the Academic Council of MARCHI. Minutes: No 6-20/21 of 23.06.2021.

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INTRODUCTORY PART

1. Goals of Mastering the Module

One of the main disciplines that provides training for a professional in architectural projects. Its purpose is to provide knowledge of methods and techniques of designing buildings of various spatial models and various functional purposes; formation of the student's design skills based on the progressively developing process of mastering the theory and practice of creating objects of various typological orientation under the guidance of a mentor.

The discipline is a mandatory part of the educational program.

2. Planned objectives of study for the discipline (module), mapped to the planned outcomes of mastering the educational program

2.1 Planned learning outcomes in the discipline (module), mapped with indicators of competencies

Abbreviations used: **GPC** - General Professional Competence; **PC** - Professional Competence; **UC** - Universal Competence.

#	Competency code and name	Code and name of Competency Achievement Indicator (CAI)	Learning outcomes
1	GPC-2. Able to carry out complex pre-project analysis and to seek optimal solution to a problem.	GPC-2.1. Taking part in collection of source data for the project, processing and analysis of data on architectural objects that are similar in function, location and urban planning requirements, and using the outcomes of these works in the development of architectural concept, sketching and search of possible alternative design solutions.	Know: Main types of requirements for various types of buildings, including social, aesthetic, functional-technological, ergonomic and economic requirements. Main sources of information, including regulatory, methodological and reference sources. Be able to: Participate in the collection of initial data for the project. Participate in sketching and searching for alternative design solutions.
2	GPC-3. Able to participate in complex design based on a systematic approach, based on current legal requirements (codes), financial resources, analysis of the situation in social, functional, environmental, technological, engineering, historical, economic and aesthetic aspects.	GPC-3.1. Participate in the development of urban and spatial planning solutions. Participate in the preparation of presentation materials, support of project documentation at the approval stages. Use methods of modeling and harmonization of artificial habitats when developing urban and spatial planning solutions. Use the techniques for preparing presentation materials for architectural projects and techniques of presenting them.	Know: Composition of design documentation drawings, social, functional and technological, ergonomic (including taking into account the characteristics of persons with disabilities and groups of persons with limited mobility), aesthetic and economic requirements for architectural objects of various types. Be able to: Participate in the development of urban and spatial planning solutions. Participate in the preparation of presentation materials, support of project documentation at the approval stages. Use methods of modeling and harmonization of artificial habitats when developing urban and spatial planning solutions. Use the techniques for preparing presentation materials for architectural projects and techniques of presenting them.
3	PC-2. Able to carry out the design and development of a custom conceptual architectural project.	PC-2.2. Research and analyze the designs, building techniques and operation experiences for similar buildings.	Know: Social, functional-technological, ergonomic, aesthetic and economic requirements for capital construction projects of various types. Basic means and methods of architectural and construction design to ensure a barrier-free environment for people with limited mobility. Socio-cultural, demographic, psychological, functional foundations of the formation of the

#	Competency code and name	Code and name of Competency Achievement Indicator (CAI)	Learning outcomes
			<p>architectural environment.</p> <p>Be able to: Analyze the contents of design problems, select methods and means for solving them. Select optimal methods and means for developing custom-designed architectural and spatial projects. Make justified choices for complex custom architectural and spatial solutions in the context of a given conceptual architectural project and the functional, technological, ergonomic and aesthetic requirements of the project. Use methods of modeling and harmonization of artificial and natural habitats when developing architectural and spatial projects.</p>
4	PC-2. Able to carry out the design and development of a custom conceptual architectural project.	PC-2.5 Creative design and development of complex custom architectural and spatial solutions for a conceptual architectural project.	<p>Know: Legal requirements of Russian Federation and other regulatory legal acts, regulatory technical and methodological documents on architectural and construction projects, including technical regulations, national standards and codes of practice, sanitary norms and rules. Requirements of international regulatory technical documents on architectural and construction projects and peculiarities of their application. Social, functional-technological, ergonomic, aesthetic and economic requirements for capital construction projects of various types. Basic means and methods of architectural and construction design to ensure a barrier-free environment for people with limited mobility. Creative techniques for presenting the author's architectural and artistic design. Fundamentals of architectural composition and patterns of visual perception.</p> <p>Be able to: Carry out creative development of complex custom architectural and spatial projects. Make justified choices for complex custom architectural and spatial solutions in the context of a given conceptual architectural project and the functional, technological, ergonomic and aesthetic requirements of the project. Use methods of modeling and harmonization of artificial and natural habitats when developing architectural and spatial projects.</p>
5	PC-2. Able to carry out the design and development of a custom conceptual architectural project.	PC-2.6 Coordinate architectural and volumetric-spatial solutions with solutions that are developed for other parts of the project.	<p>Know: The relationship between volumetric-spatial, structural, engineering decisions and operational qualities of a building. Principles of structural building design, principles of analysis of main loads and impacts. Principles for designing the environmental and ecological qualities of a construction project, including acoustics, lighting, microclimate. Building materials, products and structures used in construction, their technical, technological, aesthetic and operational characteristics. Technical and economic indicators taken into</p>

#	Competency code and name	Code and name of Competency Achievement Indicator (CAI)	Learning outcomes
			<p>account when carrying out technical and economic analysis of construction projects. Requirements of the legislation of the Russian Federation and other regulatory legal acts, regulatory technical and regulatory methodological documents for the procedure for approving design solutions. Network planning methods, norms and methods for calculating the volumes of labor and deadlines of project work.</p> <p>Be able to: Determine acceptable options for changes in the architectural and spatial solutions in coordination with decisions on other sections of the design. Calculate the technical and economic indicators of architectural and spatial solutions for a construction project. Justify decisions made for architectural and spatial problems of a construction project, including architectural, artistic, volumetric, spatial, technical, economic and environmental justifications.</p>
6	PC-4. Development of architectural parts of project documentation.	PC-4.11. Development, quality and completeness control of architectural part of project documentation.	<p>Know: Legal requirements of Russian Federation and other regulatory legal acts, regulatory technical and methodological documents on architectural and construction projects, including technical regulations, national standards and codes of practice, sanitary norms and rules. Requirements of the legislation of the Russian Federation and other regulatory legal acts, regulatory technical and regulatory methodological documents for the procedure for approving design solutions.</p> <p>Be able to: Calculate technical and economic indicators of architectural and spatial solutions for a capital construction project. Justify decisions made for architectural and spatial problems of a construction project, including architectural, artistic, volumetric, spatial, technical, economic and environmental justifications. Use automation tools for architectural and construction design and computer modeling. Technical and economic indicators taken into account when carrying out technical and economic analysis of construction projects.</p>
7	PC-4. Development of architectural parts of project documentation.	PC-4.6 Coordination of architectural and spatial solutions with solutions on other sections of the project.	<p>Know: The relationship between volumetric-spatial, structural, engineering decisions and operational qualities of a building. Principles of structural building design, principles of analysis of main loads and impacts. Principles for designing the environmental and ecological qualities of a construction project, including acoustics, lighting, microclimate. Building materials, products and structures used in construction, their technical, technological, aesthetic and operational characteristics. Main technologies used for construction and</p>

#	Competency code and name	Code and name of Competency Achievement Indicator (CAI)	Learning outcomes
			<p>installation works. Methods for carrying out technical and economic calculations of design solutions. Requirements of the legislation of the Russian Federation and other regulatory legal acts, regulatory technical and regulatory methodological documents for the procedure for approving design solutions.</p> <p>Be able to: Select optimal methods and means for specific solutions for architectural and spatial problems. Determine the volume of labor required and timelines of work on the specific parts of architectural design. Determine acceptable options for changes in the architectural and spatial solutions in coordination with decisions on other sections of the design. Calculate the technical and economic indicators of architectural and spatial solutions for a construction project.</p>
8	UC-2. Able to determine the set of tasks within the set goal and choose the optimal ways to solve them based on current legal norms, available resources and other limitations.	UC-2.1. Analysis of the project tasks, the selection of methods and means for accomplishing them, implementation of anti-corruption measures.	<p>Know: the requirements of the current codes and regulations for architectural design, sanitary standards, including requirements for organizing an accessible and barrier-free environment for persons with disabilities and low mobility persons. Requirements of anti-corruption legislation.</p> <p>Be able to: Participate in analyzing the contents of design problems, choose methods and means for solving them.</p>
9	UC-5. Able to perceive the intercultural diversity of society in socio-historical, ethical and philosophical contexts.	UC-5.1. Compliance with the laws of professional ethics and acceptance of moral obligations towards nature, society, other people and yourself for establishing a personal worldview, respectful and careful attitude to the historical and cultural heritage, cultural traditions, tolerant attitude to social and cultural differences.	<p>Know: Laws of professional ethics. The role of humanistic values for the preservation and development of modern civilization. Foundations of historical, philosophical, cultural studies. History and theory of architecture and urban planning.</p> <p>Be able to: apply laws of professional ethics. Use acquired knowledge of historical, philosophical, cultural studies for establishing a personal worldview. Treat historical and cultural heritage and cultural traditions with respect and care, tolerate social and cultural differences, accept moral obligations towards nature, society, other people and yourself.</p>

Information on the formation and monitoring of learning outcomes is presented in the Assessment Fund (Appendix 1).

Main Part

1. Module Scope and Types of Academic Work

Type of academic work	Hours	Semesters / Trimesters			
		5	6	7	8
Classroom work	648	162	162	162	162
Lectures (LEC)	16	4	4	4	4
including those in the form practical training	16	4	4	4	4

Type of academic work	Hours	Semesters / Trimesters			
		5	6	7	8
Practical lessons (PR)	624	156	156	156	156
including those in the form practical training	624	156	156	156	156
Work in groups (GR)		0	0	0	0
including those in the form practical training		0	0	0	0
Classroom time spent during attestations (AT)	8	2	2	2	2
including those in the form practical training	8	2	2	2	2
Self-preparation for the exam (SP)		0	0	0	0
including those in the form practical training		0	0	0	0
Independent work	684	198	216	126	144
including those in the form practical training	684	198	216	126	144
Type of intermediate attestation: (T - test, TG - test with grade, E - exam)		TG	TG	TG	TG
Total hours:	1332	360	378	288	306
Credits:	37	10	10.5	8	8.5

1 credit = 36 academic hours.

2. Contents of the discipline (module)

2.1 Sections of the discipline (module)

Section	Section name
1	Project of a small building, which is built as a combination of a main large hall-type space and several subordinate spaces (club, business club, nightclub-disco, children's club, media library, etc.).
2	Project of an industrial technological object in a specific urban environment, based on a volumetric-spatial design solution (garage for N-number of cars, fire station, service station, etc.).
3	Project of a modular mid-rise building for a set purpose in a specific urban planning environment (residential building, residential building for special types of families, etc.).
4	Project of a small residential formation (workers' village, village in rural area, tourist cottage complex, special-purpose village, etc.).
5	Project of a large small-cell structure building in combination with large volume spaces in a specific urban environment (general education school, special purpose school, boarding school, hospital, sanatorium and rehabilitation center, etc.).
6	Project of a hall-type building with constant flow of visitors (museum, exhibition complex, special-purpose gallery, etc.).
7	Project of a district development in dense urban area (neighborhood in a large, largest or medium-sized city).
8	Project of a multi-storey residential building as a modular volumetric-spatial object that meets a set of special requirements.

2.2 Contents of the discipline (module)

Semester	Section	Topic	Stages and tasks
5	1	Project of a small building, which is built as a combination of a main large hall-type space and several subordinate spaces (club, business club, nightclub-disco, children's club, media library, etc.).	<p>Stage 1: Sketch - the conceptual idea of the building in the surrounding environment. Task: Architectural approval of the idea of a building with a combined hall and small spaces structure.</p> <p>Stage 2: Sketch with assessment - volumetric spatial solution of the building. Task: Design the architecture of the building according to approved conceptual idea. Technical drawings: plans, elevations, cross-sections, site plan.</p> <p>Stage 3: Results of the project. Task: Finalization and presentation of the project taking into account the comments.</p> <p>Stage 4 - Interior. Question: Development of the interior (selectively) of a space (one of the spaces) of the building that demonstrates an architectural idea.</p>
5	2	Project of an industrial technological object in a specific urban environment, based on a volumetric-spatial design solution (garage for N-number of cars, fire station, service station, etc.).	<p>Stage 1: Sketch - the idea of the spatial solution for the building in the surrounding urban environment. Task: Approval of the image of the building in urban environment.</p> <p>Stage 2: Sketch with assessment - volumetric spatial solution of the building. Task1: Design the architecture of the building reflecting the technological process. Technical drawings: plans, elevations, cross-sections, site plan, urban development plans. Task 2: Development of the construction project with the participation of a consulting engineer.</p>

Seme-ster	Secti-on	Topic	Stages and tasks
			<p>Stage 3: Results of the project.</p> <p>Task: Corrections, improvements and presentation of the project taking into consideration comments received during assessment of the sketch.</p>
6	3	Project of a modular mid-rise building for a set purpose in a specific urban planning environment (residential building, residential building for special types of families, etc.).	<p>Stage 1: Sketch - the conceptual idea of the building.</p> <p>Task: Approval of the architectural image of a modular building with residential cells in an urban environment.</p> <p>Stage 2: A sketch of a volumetric-spatial solution of the building.</p> <p>Task 1: Design of the architecture of a mid-rise residential building. Technical drawings: plans, elevations, cross-sections, site plan, urban development plan.</p> <p>Task 2: Planning the structure of the residential spaces of the house from the point of view of demographic composition.</p> <p>Task 3: Checking compliance with insolation standards for residential cells.</p> <p>Stage 3: Project presentation.</p> <p>Task: Corrections, improvements and presentation of the project taking into consideration feedback collected after initial sketch.</p>
6	4	Project of a small residential formation (workers' village, village in rural area, tourist cottage complex, special-purpose village, etc.).	<p>Stage 1: A conceptual sketch of the layout of the village.</p> <p>Task: Development of a settlement taking into account the analysis of the local urban environment: development of transport and functional schemes.</p> <p>Stage 2: Spatial plan of the village buildings.</p> <p>Task 1: Create an conceptual architectural model of the village, technical drawings.</p> <p>Task 2: Design of the types of buildings and panoramic views.</p> <p>Task 3: Design of the layout of the village. Technical drawings: geographic location plan, site plan, urban plans, fragment of a built-up area, panoramic drawings or elevations.</p> <p>Stage 3: Presentation of the project.</p> <p>Task: Corrections, improvements and presentation of the project with supporting drawings and plans, with a set of standard designs for houses and panoramic views, taking into consideration feedback collected after initial sketch.</p>
7	5	Project of a large small-cell structure building in combination with large volume spaces in a specific urban environment (general education school, special purpose school, boarding school, hospital, sanatorium and rehabilitation center, etc.).	<p>Stage 1: Sketch - the idea of the spatial solution for the building in the surrounding urban environment.</p> <p>Task 1: Analysis of the surrounding urban environment.</p> <p>Task 2: Corrections/modifications of the plan according to the results of functional and location analyses.</p> <p>Stage 2: Sketch of a large building consisting of small 'cells' designed for the required urban environment.</p> <p>Task: Design of the architecture of a small-cell structure building in combination with large volume spaces. Technical drawings: plans, elevations, cross-sections, site plan, urban development plans.</p> <p>Stage 3: Presentation of the project.</p> <p>Task: Corrections, improvements and final presentation of the project taking into consideration the feedback collected after initial presentation.</p>
7	6	Project of a hall-type building with constant flow of visitors (museum, exhibition complex, special-purpose gallery, etc.)	<p>Stage 1: Sketch - the idea of the spatial solution for the building.</p> <p>Task: Create an architectural idea and a cultural image for the specific urban environment.</p> <p>Stage 2: Sketch of the hall-type building. Technical drawings: plans, elevations, cross-sections, site plan, urban development plans, 3-D pictures.</p> <p>Task: Reflect in the architecture the artistic image of the</p>

Semester	Section	Topic	Stages and tasks
			purpose of the building and identify patterns of the flow of visitors. Stage 3: Presentation of the project. Task: Presentation of the corrected and improved project taking into consideration the feedback collected after initial presentation.
8	7	Project of a district development in dense urban area (neighborhood in a large, largest or medium-sized city).	Stage 1: Sketch - the idea of the development of an "inter-avenue" neighborhood - an area between main avenues of a city. Task: Development of an urban multifunctional environment with analysis of the current urban planning situation; development of transport and functional schemes. Stage 2: Sketch of a spatial plan of the neighborhood. Task 1: Create an architectural model and technical drawings - plans etc. Task 2: Design the standard types of buildings and panoramic views. Task 3: Design the layout of the neighborhood. Technical drawings: geographic location plan, site plan, urban plans, fragment of a built-up area and landscaping, panoramic drawings or panoramic elevations. Stage 3: Presentation of the project. Task: Present the completed project with drawings and diagrams that help understand the project ideas, images, representing a fragment of the neighborhood and panoramic views with corrections and updates based on comments and feedback after the initial sketch.
8	8	Project of a multi-storey residential building as a modular volumetric-spatial object that meets a set of special requirements.	Stage 1: Sketch - the idea of the spatial solution for the building. Task: Approval of the architectural image of a high-rise modular building with residential cells in an urban environment. Stage 2: A sketch of a volumetric-spatial solution of the building. Task 1: Design of the architecture of a multi-storey residential building. Technical drawings: plans, elevations, cross-sections, site plan, urban development plan. Task 2: Planning the structure of the residential spaces of the house from the point of view of demographic composition of residents. Task 3: Checking compliance with insulation standards for residential cells. Task 4: Architecture of the building must take into account engineering requirements of a multi-storey building. Task 5: Development of the construction project with the participation of a consulting engineer. Stage 3: Presentation of the project. Task: Presentation of the corrected and improved project taking into consideration the feedback collected after initial presentation.

2.3 Topics of the sections of the module and types of educational activities

Semester	Section	Topic	LEC	PR	GR	AT	SP	Total hours	Com-pen-ces
5	1	Project of a small building, which is built as a combination of a main large hall-type space and several subordinate spaces (club, business club, nightclub-disco,	2	80		1	100	183	GPC-2.1 GPC-3.1 PC-2.2

[illegible]

2.4 Example Project Topics

Section 1. Project of a small building, which is built as a combination of a main large hall-type space and several subordinate spaces.

1. Small town club of a universal type.
2. Business club.
3. Night club.
4. Professional club.
5. Children club - media library.

Section 2. Project of an industrial technological object in a specific urban environment, based on a volumetric-spatial design solution.

1. Garage for 300 cars.
2. Parking for 300 cars.
3. Automatic parking in a tight built-up area of a megapolis.

Section 3. Project of a modular mid-rise building for a set purpose in a specific urban planning environment.

1. Mid-rise residential building.
2. Mid-rise residential building for small-size families.
3. Mid-rise residential building for families with difficult circumstances.

Section 4. Project of a small residential formation.

1. Workers' village.
2. Village in rural area.
3. Tourist camping/small cottage complex.
4. Special-purpose village.

Section 5. Project of a large small-cell structure building in combination with large volume spaces in a specific urban environment.

1. General education school.
2. Special purpose school.
3. Special purpose boarding school.

Section 6. Project of a hall-type building with constant flow of visitors.

1. Museum.
2. Exhibition complex.
3. Exhibition gallery.

Section 7. Project of a district development in dense urban area.

1. Micro-district of a large or largest city.
2. District (neighborhood) of a medium-sized city.

Section 8. Project of a multi-storey residential building as a modular volumetric-spatial object that meets a set of special requirements.

1. Infill development - a high-rise building.
2. Mid-rise townhouse (terraced house).
3. High-rise building of a combination nature.

3. Independent Work

3.1. Types of Independent Work

Se- me- ster	Secti- on	Topic	Types of independent work	Total hours
5	1	Project of a small building, which is built as a combination of a main large hall-type space and several subordinate spaces (club, business club, nightclub-disco, children's club, media library, etc.).	Individual homework Presentation drawings/sketches Essay	100
5	2	Project of an industrial technological object in a specific urban environment, based on a volumetric-spatial design solution (garage for N-number of cars, fire station, service station, etc.).	Individual homework Presentation drawings/sketches Essay	98
Total in semester:				198
6	3	Project of a modular mid-rise building for a set purpose in a specific urban planning environment (residential building, residential building for special types of families, etc.).	Individual homework Presentation drawings/sketches Essay	108
6	4	Project of a small residential formation (workers' village, village in rural area, tourist cottage complex, special-purpose village, etc.).	Individual homework Presentation drawings/sketches Essay	108
Total in semester:				216
7	5	Project of a large small-cell structure building in combination with large volume spaces in a specific urban environment (general education school, special purpose school, boarding school, hospital, sanatorium and rehabilitation center, etc.).	Individual homework Presentation drawings/sketches Essay	66
7	6	Project of a hall-type building with constant flow of visitors (museum, exhibition complex, special-purpose gallery, etc.).	Individual homework Presentation drawings/sketches Essay	60
Total in semester:				126
8	7	Project of a district development in dense urban area (neighborhood in a large, largest or medium-sized city).	Individual homework Presentation drawings/sketches Essay	72
8	8	Project of a multi-storey residential building as a modular volumetric-spatial object that meets a set of special requirements.	Individual homework Presentation drawings/sketches Essay	72
Total in semester:				144
Total:				684

4. Assessment of the results of mastering the discipline (module)

Assessment of the level of educational achievements of students is carried out in the form of ongoing monitoring of progress and intermediate assessment.

The Fund of Assessment Tools for the discipline is given in Appendix 1 to the work program of the discipline.

Assessment tools for conducting intermediate assessment, as well as ongoing monitoring of the students progress, are stored at the department (structural unit) responsible for teaching this discipline and in the information and educational environment of MARCHI.

5. Educational, methodological and information materials of the discipline (module)

5.1 Main literature

Skipped

5.2 Additional literature

Skipped

5.3 Databases, Information systems, Search engines

Skipped

5.4 Educational and methodological support for students' independent work, guidelines for mastering the discipline

Skipped

6. Materials and Technical Support for the Module

A set of educational materials and literature at the department or in the library (electronic library, electronic database), computer classes in the computer center, exhibition areas (exhibition hall).

6.1 Classroom Requirements

Classrooms must comply with sanitary standards, tables and chairs according to the number of students, a table and chairs for teachers, if necessary: demonstration trestles, projection equipment and sound amplification equipment.

6.2 Requirements for the Students' Workplaces Equipment

Access to electricity, access to the Internet.

6.3 Requirements for Special Equipment

The Department must be provided with a computer connected to the university computer network.

6.3 Requirements for the Software for the Educational Process

The discipline is provided by freely distributed or educational (demo) versions of software.