

Ministry of Education and Science of Ukraine
National University “Yuri Kondratyuk Poltava Polytechnic”

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**METHODS
OF ARCHITECTURAL
DESIGN**

Educational book
for students of the specialty
191 “Architecture and Urban Planning”

Poltava 2022

UDC 72.012.01(075.8)

D53

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Recommended for publication by the Scientific and Methodological Council of
the National University “Yuri Kondratyuk Poltava Polytechnic”
Protocol No. 3 of December 15, 2022.

**Dmytrenko A. Methods of Architectural Design: educational book /
A. Dmytrenko, V. Liakh, O. Tyshkevych; edited by A. Dmytrenko. –
Poltava : Yuri Kondratyuk National University, 2022. – 323 p.; ill.**

For students studying in English on the specialty 191 “Architecture and
Urban Planning” of the first (bachelor) level of full-time higher education.

The educational book examines the theoretical foundations of
architectural design: the concept of architecture as a system, the main
hierarchical levels and design objects, the peculiarities of the architect’s creative
method, the main factors influencing the formation of design solutions. The
issue of normative regulation of architectural activity is highlighted. Practical
recommendations for the design methodology at various stages of project
implementation are given, the main techniques used in modern architecture are
outlined, and modern trends and prospects for its development are outlined.

The educational book is intended for students of higher educational
institutions who are studying in specialty 191 “Architecture and Urban
Planning”.

Published in authors’ edition

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55.10.01.03

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INTRODUCTION

The educational book “Methods of Architectural Design” is intended for students of the second (bachelor's) level of higher education studying in English. The content of this manual corresponds to the educational and professional training program of the bachelor's degree in specialty 191 "Architecture and Urban Planning".

The academic discipline “Methods of Architectural Design” occupies a special place in the professional training of architects. In the process of studying it, students should not only learn the theoretical foundations of architectural design, information about architectural objects and the laws of their creation, but also gain knowledge about the design methodology and practical recommendations for its application at various stages of project implementation.

In accordance with these tasks, the structure of both the training course and the educational book was also constructed. It can be conventionally divided into two blocks: the first is devoted to the theoretical foundations of architecture (chapters one, two, three), and the second – methods and the most common modern techniques of architectural design (chapters four and five).

The first chapter highlights the concept of architecture as a system – as an artificially created environment and as an activity of its formation, its social significance, properties of architectural systems and the main principles of their formation. Understanding the principles of organizing complex architectural systems is necessary both for studying existing architectural objects and for designing new ones. Based on the understanding of architecture as a system (both architectural activity and its result – the architectural environment), information is provided about the hierarchical levels of architectural design and about design objects at each of these levels, including the classification of architectural objects.

The second chapter reveals the content of the main requirements for architectural objects (at the hierarchical level of buildings, structures and their complexes) and defines the main factors affecting their design solution. These factors include: natural-and-climatic and urban planning conditions; functional purpose of the object; economic conditions; constructive and technological possibilities; ensuring safety and inclusion when using an architectural object; psychophysiological features of human perception of the architectural environment; aesthetic values and ideological content of architecture. The nature of the each factor influence on the design solution of architectural objects is briefly described.

The third chapter contains issues of normative regulation of architectural activity. In addition to information about the organization of the system of standardization and regulation in architecture and construction, typification, unification and modular coordination of dimensions, the content of architectural design as one of the stages of the investment and construction process is revealed. Information is given on the algorithm for determining the class of consequences (importance) of the construction object and, based on the

determined class of consequences, the determination of the number of designing stages of an architectural object. Information is provided on the composition, procedure for development and approval of design documentation, conducting pre-design studies and author's supervision.

The fourth chapter reveals the purpose, tasks and content of the main stages of architectural design (regarding the implementation of both educational and real projects). Much attention is paid to revealing the content of the main creative design methods and methods of finding new ideas. The concept of intuition as an integral component of the creative process is considered.

The fifth chapter contains a description of the most characteristic urban planning, functional planning, constructive and figurative methods used in modern architectural and construction practice. Well-known techniques for solving architectural problems are revealed on the example of objects created during the 20th – early 21st centuries and belonging to various stylistic directions and currents – from organic architecture and modernism to postmodernism and high-tech.

The textual part of the educational book is illustrated with graphic tables, drawings and photos from nature, which more clearly reveals its content and facilitates learning of the academic discipline.

The educational book uses the British version of the English language, but the most common terms are also duplicated in the American version of the English language – for example, lift (UK) / elevator (US).

The authors of the educational book, realizing that it is intended primarily for foreign students from different countries, found themselves in a difficult situation in terms of familiarizing students with the main provisions of normative documents in the field of construction and architecture. It is natural that in different countries, national standards in the field of construction differ, so it is impossible to familiarize students from different countries with their national construction standards at the same time. A compromise solution was adopted: students familiarize themselves with regulatory documents in the field of construction and architecture using the example of Ukraine. This solution is also justified by the compatibility of Ukrainian national norms in the field of construction with the corresponding norms of the European Union, as well as the fact that most of the Ukrainian norms are stricter in comparison with the norms of European and North American countries. At the same time, the educational book constantly emphasizes the need to study and comply with national building codes when designing in a certain country.

However, it should be remembered that despite the difference between the national building standards of different countries, their ultimate goal is the same – the formation of an architectural environment favourable for people and society as a whole, which meets the requirements of sustainable and integrated urban development, capable of adequately responding to the urgent global challenges, such as climate change, biodiversity loss, resource scarcity,

demographic change, migration movements, pandemics and a rapidly changing economy.

The countries of the European Union declared their commitment to this policy framework in the Leipzig Charter on Sustainable European Cities (2007) [39], signed by their authorized representatives. The provisions of the Leipzig Charter of 2007 were confirmed and clarified taking into account new global challenges in The New Leipzig Charter – The transformative power of cities for the common good (2020) [66], signed by the authorized representatives of the European Union countries on November 3, 2020.

The main provisions of these program documents are relevant guidelines for architectural activity not only for Ukraine, which has been consistently following the path of European integration for a long time, but also for many other countries (in particular, African and Middle Eastern countries) historically connected with Europe in the field of culture, economy, science and education.

Despite the fact that the educational book contains information from various normative documents, students are expected to actively use the relevant state building norms and rules and other special literature. The questions and tasks placed at the end of each subsection will allow students to more effectively process the educational material in the process of self-guided work. The alphabetical and subject index placed at the end of the educational book also contributes to this.

Based on the fact that students will encounter a large number of new concepts and specific terms during the course, Appendix A provides basic terms and definitions.

A characteristic feature of the educational book is its focus on students' assimilation of theoretical knowledge and practical skills necessary for successful mastering of the defining, most important academic discipline for an architect – “Architectural Design”. It is expected that it will be useful to architectural students not only during the second year, but also during the entire period of study.

This educational book was developed by the authors on the basis of the educational book "Basics and Methods of Architectural Design" and other authors' publications on the methods of architectural design. Chapters 1 and 5 were prepared by Andrii Dmytrenko, Ph.D., Associate Professor, Associate Professor of the Department of Architecture of Buildings and Design of the National University “Yuri Kondratyuk Poltava Polytechnic”; chapters 3 and 4 – by Ph.D., Associate Professor, Associate Professor of the Department of Architecture of Buildings and Design of the National University “Yuri Kondratyuk Poltava Polytechnic” Vasyl Liakh; introduction, chapter 2 and appendices – by Associate Professor, Associate Professor of the Department of Architecture of Buildings and Design of the National University “Yuri Kondratyuk Poltava Polytechnic” Olha Tyshkevych.