MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
LVIV POLYTECHNIC
NATIONAL UNIVERSITY

"APPROVED"
Rector
of Lviv Polytechnic
National University

_____ /Bobalo Yu.Ya./
«_31_» _____05_____ 2021

EDUCATIONAL AND SCIENTIFIC PROGRAM

of the third (educational and scientific) level of higher education

in the specialty 191 "Architecture and Urban Planning"

field of knowledge 19 "Architecture and Construction"

Qualification: Doctor of Philosophy in the specialty "Architecture and Urban Planning"

Reviewed and approved by
by the Academic Council of the University
(Pr. № 74 of "25" May 2021)

Lviv 2021

Developed by the project group under the specialty 191 Architecture and Urban Planning as part of:

Head:		
Cherkes B.S..	-	- Doctor of Architecture, Professor, Director of the Institute of Architecture
Members:	-	- Doctor of Architecture, Professor, Head of the Department of Restoration of Architectural and Artistic Heritage
Bevz M.V..		
Gabrel M.M.	-	- Doctor of Technical Sciences, Professor, Head of the Department of Architectural Design
Proskuryakov V.I.	-	- Doctor of Architecture, Professor, Head of the Department of Architectural Environment Design
Petryshyn G.P.	-	- Candidate of Architecture, Professor, Head of the Department of Urban Planning

The head
of the project group _____ Dr. Arch., Prof. Cherkes B.S.

Director of the Educational and Scientific
Institute of Architecture _____ Dr. Arch., Prof. Cherkes B.S.

Approved and put into effect by the Order of the Rector of Lviv Polytechnic National University dated "01" June 2021 № 325-1-10.

This educational and scientific program may not be fully or partially reproduced, replicated and distributed without the permission of Lviv Polytechnic National University..

I. EDUCATIONAL COMPONENT OF THE EDUCATIONAL AND SCIENTIFIC PROGRAM

1. Profile of the Doctor of Philosophy program
Field of knowledge 19 "Architecture and Construction"
in the specialty 191 "Architecture and Urban planning"

1 – General information	
1	2
Full name of the higher education institution and structural unit	**Lviv Polytechnic National University**
Full name of the qualification in the original language	**Доктор філософії з галузі** архітектури та будівництва **за спеціальністю** архітектури та містобудування **Doctor of Philosophy in Architecture and Civil Engineering, specializing in architecture and Urban Panning**
The official name of the educational and scientific program	Архітектура та містобудування Architecture and urban planning
Type of diploma and scope of the educational program	Diploma of Doctor of Philosophy, single, 43 ECTS credits of the educational component of the educational and scientific program, the term of the educational component of the educational and scientific program - 2 years
Cycle/level	NQF of Ukraine - level 8, FQ-EHEA - third cycle, EQF-LLL - level 8
Prerequisites	Level of higher education "Master"
Language(s) of teaching	Ukrainian
Basic concepts and their definitions	The educational and scientific program uses the basic concepts and their definitions in accordance with the Law of Ukraine "On Higher Education" dated 01.07.2014 No. 1556-VII as amended, the Law of Ukraine "On Scientific and Scientific-Technical Activity" dated 26.11.2015 No. 848-VIII as amended, the Procedure for the preparation of applicants for the degree of Doctor of Philosophy and Doctor of Sciences in higher education institutions (scientific institutions), approved by the Resolution of the Cabinet of Ministers of 23.03.2016 № 261
2 – The purpose of the educational and scientific program	
	To deepen theoretical knowledge and practical skills in the field of architecture and construction in the specialty of architecture and urban planning, to develop philosophical and linguistic competencies, to form universal research skills sufficient for conducting and successfully completing scientific research and further professional and scientific activities
3 - Characteristics of the educational and scientific program	
Subject area (field of knowledge, specialty)	Field of knowledge 19 "Architecture and Construction", specialty 191 "Architecture and Urban Planning
Orientation of the Educational and Scientific program	The educational and scientific program is based on the fundamental postulates of architecture and the results of modern scientific research in the field of innovative development of the theory and practice of architecture and urban planning. It is aimed at the development of theoretical, methodological and methodological-applied base in the field of architecture with emphasis on the latest trends in the development of architecture and urban planning, which deepens the professional scientific

Continuation of the table 1

1	2
	outlook and provides the basis for scientific research and further professional and scientific activities
Features of the program	The Educational and Scientific Program covers a wide range of modern innovative vectors of development of the theory and practice of architecture and urban planning, which forms an updated theoretical and applied basis for scientific research
4 – Suitability of graduates of the educational and scientific program for employment and further education	
Suitability for employment	Jobs in public and private higher education institutions, scientific and research institutions as teachers and researchers, in enterprises and organizations of various types of activities and forms of ownership in management positions
Further training	Scientific program of the fourth (scientific) level of higher education "Doctor of Sciences"
5 – Teaching and assessment	
Teaching and learning	Combination of lectures and practical classes, pedagogical workshop, consulting with the supervisor, scientific and pedagogical community with independent scientific and educational work
Evaluation	Exams, tests, current control
6 – Program competencies	
Integral competence (INT)	Ability to produce innovative scientific ideas, master the methodology of scientific and pedagogical activity, solve complex problems in the process of innovative research and professional activity, conduct original scientific research in the field of architecture and urban planning at the international and national level
General competences (GC)	1. 1. In-depth knowledge of conceptual, methodological, methodological and applied principles of architecture and urban planning in historical and modern perspectives, its conceptual and categorical apparatus and practical experience. 2. 2. Thorough knowledge and understanding of philosophical methodology of knowledge, key principles of professional ethics, system of moral and cultural values. 3. 3. Ability to initiate and conduct original scientific research, identify current scientific problems, search and critically analyze information, produce innovative constructive ideas and apply non-standard approaches to solving complex and atypical problems. 4. 4. Ability to demonstrate oratorical and rhetorical skills in presenting the results of scientific research, to conduct a professional scientific conversation and discussion with the general scientific community and the public in Ukrainian, to form scientific texts in writing, to organize and conduct training sessions, to use advanced information and communication tools. 5. 5. Ability to present and discuss the results of scientific research in English in oral and written form, to read and fully understand English-language scientific texts. 6. Ability to be purposeful and persistent, self-improvement throughout life, to realize social and moral responsibility for the obtained scientific results.

Continuation of the table 1

1	2
	7. Ability to initiate, substantiate and manage actual scientific projects of innovative nature, independently conduct scientific research, interact in a team and show leadership skills in the implementation of scientific projects.
Special (professional) competencies (SC)	1. In-depth knowledge of the historical foundations of the development of the theory of architecture and urban planning. Knowledge of modern development trends and the most important new scientific achievements in the field of architecture and urban planning. 2. In-depth knowledge of classical and modern scientific tools for the study of historical, cultural, socio-economic, architectural and artistic phenomena and processes in various fields of architecture and urban planning. 3. In-depth knowledge of theoretical and applied principles of various types and areas of architecture and urban planning. 4. Ability to identify and understand the cause-and-effect relationships between historical and cultural phenomena and processes in the field of architecture, to identify and evaluate factors of influence. 5. Ability to develop and implement architectural and urban planning projects, including their own research, which make it possible to rethink existing or create new knowledge. 6. Ability to develop logical and reasonable sequences, systems, mechanisms, models, etc. for specific architectural and urban planning objects.
7 – Program learning outcomes	
Knowledge (KN)	1. Ability to demonstrate in-depth knowledge of historical and modern conceptual, methodological and methodological principles of architecture and urban planning. 2. Ability to demonstrate in-depth knowledge of domestic and foreign scientific achievements and practical experience in the field of architecture and urban planning. 3. Ability to demonstrate in-depth knowledge of theoretical and applied principles of a wide range of varieties and areas of architecture and urban planning. 4. Ability to demonstrate understanding of the impact of architectural and technical solutions in the social, economic, cultural and social context. 5. Ability to demonstrate in-depth knowledge and understanding of classical and modern methodological and methodological basis of research of socio-economic phenomena and processes in the field of architecture and urban planning. 6. Ability to demonstrate knowledge and understanding of the philosophical methodology of scientific knowledge, psychological and pedagogical aspects of professional and scientific activity, own scientific worldview and moral and cultural values. 7. Ability to demonstrate sufficient knowledge of English necessary for oral and written presentation of scientific research results, conducting professional scientific dialogue, full understanding of English-language scientific texts.

Continuation of the table 1

1	2
Skills (SK)	1. Apply the acquired knowledge in the field of architecture and urban planning to formulate and substantiate new theoretical positions and practical recommendations in a particular field of study. 2. Integrate and apply the acquired knowledge from various interdisciplinary areas in the process of solving theoretical and applied problems in a specific field of study. 3. To choose and apply the methodology and tools of scientific research in the implementation of theoretical and empirical research in the field of architecture and urban planning. 4. Conduct research and carry out research projects on the basis of identifying current scientific problems, defining goals and objectives, forming and critically analyzing the information base, substantiating and commercializing research results, formulating author's conclusions and proposals. 5. To carry out design and search architectural modeling and socio-economic diagnosis of various processes and objects in the field of architecture and urban planning. 6. To conduct a scientific conversation and discussion in Ukrainian and English at the proper professional level, to present the results of scientific research in oral and written form, to organize and conduct training sessions.
Communication (COM)	1. Ability to communicate in business scientific and professional language, apply different styles of speech, methods and techniques of communication, demonstrate a wide scientific and professional vocabulary. 2. Ability to apply modern information and communication tools and technologies to ensure effective scientific and professional communications.
Autonomy and responsibility (A&R)	1. Ability to independently conduct scientific research and make decisions. 2. Ability to formulate own author's conclusions, suggestions and recommendations. 3. Ability to understand and take personal responsibility for the results of the study.
8 – Resource support for the implementation of the Educational Program	
Specific characteristics of personnel provision	100% of research and teaching staff involved in teaching the cycle of disciplines that provide special (professional) competencies of graduate students have academic degrees and academic titles
Specific characteristics of logistics support	Use of modern software: «CorelDraw», «Adobe Photoshop», «ArchiCAD», «3D Studio MAX»
Specific characteristics of information and methodological support	Using the Virtual Learning Environment of Lviv Polytechnic National University and the author's developments of scientific and pedagogical staff

Continuation of the table 1

1	2
9 – Academic Mobility	
National Credit Mobility	On the basis of bilateral agreements between Lviv Polytechnic National University and Universities of Ukraine
International Credit Mobility	Within the framework of the EU Erasmus+ program on the basis of bilateral agreements between Lviv Polytechnic National University and educational institutions of partner countries
Training of foreign postgraduate students	It's possible

2. Distribution of the content educational component of the Educational and Scientific program by groups of components and training cycles

№ n/p	Preparation Cycles	The amount of study load of the postgraduate student (credits /%)		
		Required components of the educational component	Selective components of the educational complex	Total for the entire period teaching
1.	The cycle of disciplines that form general scientific competencies and universal skills of the researcher	21/49	3/7	24/56
2.	The cycle of disciplines that form professional competencies	10/23	6/14	16/37
3.	The cycle of disciplines of free choice of a graduate student	-	3/7	3/7
Total for the entire period of study		**31/72**	**12/28**	**43/100**

3. List of components of the educational component of the Educational and Scientific program

Discipline code	Components of the educational component	Number of credits	Form final control	Competences provided by Resolution 261 of March 23, 2016 (as amended on April 3, 2019)
1	2	3	4	5
1. Mandatory components of the educational component				
The cycle of disciplines that form general scientific competencies and universal skills of the researcher				
MK 1.1.	Foreign Language for Academic Purposes, Part 1	4	test	Acquisition of language competencies sufficient to present and discuss the results of their scientific work in a foreign language orally and in writing, as well as for a full understanding of foreign scientific texts in the field, the use of modern information technology (presentation of scientific results).
MK1.2.	Philosophy and Methodology of Science	3	exam	Mastering general scientific (philosophical) competencies aimed at forming a systematic scientific worldview, professional ethics and general cultural outlook; application of modern information technologies in scientific activity (work with NMBD, automatic formation of references to literature sources)
MK1.3.	Foreign Language for Academic Purposes, Part 2	4	exam	Acquisition of language competencies sufficient to present and discuss the results of their scientific work in a foreign language orally and in writing, as well as for a full understanding of foreign scientific texts in the field, the use of modern information technology (presentation of scientific results).
MK1.4.	Professional Pedagogy	3	test	Acquisition of universal skills of the researcher, in particular, the organization and carrying out of educational employment, application of modern information technologies (work with VSE, Microsoft Teams, Zoom, etc.)
MK1.5.	Academic Entrepreneurship	4	test	Acquisition of universal skills of a researcher, including oral and written presentation of the results of own research in

				Ukrainian, management of research projects and / or drafting proposals for research funding, registration of intellectual property rights, application of modern information technologies.
MK1.6.	Pedagogical Practice	3	test	Acquisition of universal skills of a researcher, in particular, organization and conduct of training sessions, application of modern information technologies (work with VNS, Microsoft Teams, Zoom, etc.).
Total per cycle:		**21**		
The cycle of disciplines that form professional competencies				
MK2.1. *	Research Seminar in the Field of Architecture, Urban Planning, Art and Design	4	exam	Acquisition of in-depth knowledge of the specialty in which the graduate student conducts research, including mastering basic concepts, understanding of theoretical and practical problems, history of development and current state of scientific knowledge in the chosen specialty, mastering terminology in the research area in ECTS credits according to higher education standard
MK2.2. *	Theoretical models in Architecture, Urban Planning, Art and Design	3	exam	
MK2.3. *	Traditions and Innovations in the Development of European Culture	3	exam	
Total per cycle:		**10 (4+3+3)**		
Selected components of the educational component **				
The cycle of disciplines that form general scientific competencies and universal skills of the researcher				
EL1.1	Business Freign Language	3	test	Acquisition of universal skills of a researcher, including oral and written presentation of the results of own research in Ukrainian, management of research projects and / or drafting proposals for research funding, registration of intellectual property rights, application of modern information technologies. Acquisition of language competencies sufficient to present and discuss the results of their scientific work in a foreign language orally and in writing, as well as for a full understanding of foreign scientific texts in the field, the use of modern information technology (presentation of scientific results).
EL1.2	Psychology of cCreativity and Invention	3	test	
EL1.3	Management of Scientific Projects	3	test	
EL1.4	Technology of Grant Applications and Patent Rights	3	test	
EL1.5	Rhetoric	3	test	
EL 1.6	Modern inventory in research activities	3	test	
EL 1.7	Open scientific practices	3	test	
EL 1.8	Academic virtue and quality of education	3	test	
EL 1.9	Methodology of preparation of scientific publications	3	test	
EL 1.10	Quality of higher education (formation of internal quality assurance systems)	3	test	

				Mastering general scientific (philosophical) competencies aimed at forming a systematic scientific worldview, professional ethics and general cultural outlook; application of modern information technologies in scientific activity (work with NMBD, automatic formation of references to literature sources) Acquisition of universal skills of the researcher, in particular, the organization and conducting training sessions, application of modern information technologies (work with VSE, Microsoft Teams, Zoom, etc.).
Total per cycle:		**3**		
*The cycle of disciplines that form professional competencies ***				
EL2.1	Special research methods in the field of architecture, urban planning, art and design	3	exam	Acquisition of in-depth knowledge in the specialty "Design", in particular mastering the basic concepts, understanding of theoretical and practical problems, history of development and current state of scientific knowledge in the specialty, mastering the terminology of the research field
EL2.2	International experience in the protection and preservation of historical and cultural monuments and monument protection legislation of Ukraine	3	exam	
EL2.3	Problems of art synthesis in art culture	3	exam	
EL2.4	Semiotics in project culture	3	exam	
EL2.5	Synthesis of arts of design and artistic activity in the formation of subject-spatial environment	3	exam	
EL2.6	Visual culture of modern design	3	exam	
EL2.7	Historical paradigms and modern theories in architecture and design.	3	exam	
EL2.8	Ethnocultural traditions in modern design	3	exam	
EL2.9	Criteria for determining the categories of monuments of art and architecture and the procedure for entering them in the State Register	3	exam	
EL2.10	Conceptual and terminological apparatus of scientific research in the field of architecture, urban planning, art and design	3	exam	
EL2.11	Futuristic ideas in architecture, urban planning,	3	exam	

	art and design			
EL2.12	Source base of scientific research in the field of architecture, urban planning, art and design	3	exam	
Total per cycle:		**6 (3+3)**		
3. Disciplines at the free choice of the graduate student **				
EL3.1	Discipline of free choice of a graduate student	3	test	
Total per cycle:		**3**		
TOTALLY		**43**		

Note: * - pedagogical workshop can take place in the second or third year of study;
** - the postgraduate student has the opportunity to choose the disciplines from item 2, item 3 (elective and free choice), and the share of these subjects must be at least 25% of the total number of ECTS credits.

4. Matrix of compliance of program competencies to educational components

	МК1.1.	МК1.2.	МК1.3.	МК1.4.	МК1.5.	МК1.6.	МК2.1.	МК2.2.	МК2.3.	EL 1.1.	EL 1.2.	EL 1.3.	EL 1.4.	EL 1.5.	EL 1.6.	EL 1.7.	EL 1.8.	EL 1.9.	EL 1.10.	EL 2.1.	EL 2.2.	EL 2.3.	EL 2.4.	EL 2.5.	EL 2.6.	EL 2.7.	EL 2.8.	EL 2.9.	EL 2.10.	EL 2.11.	EL 2.12.
INT	•	•	•	•	•	•	•	•	•	•	•	•	•	•						•	•	•	•	•	•	•	•	•	•	•	•
GC1		•		•					•																						
GC2	•				•												•		•												
GC3	•		•		•	•					•	•			•	•														•	
GC4	•				•	•					•	•		•		•		•			•										
GC5		•		•														•													
GC6	•				•						•						•														
GC7	•				•		•				•	•	•						•												
PC1									•														•	•			•	•			
PC2							•															•									
PC3	•	•	•	•																•	•	•	•	•	•	•	•	•			
PC4											•	•													•	•					
PC5								•												•		•	•			•					•
PC6							•		•		•	•	•			•						•					•	•	•		

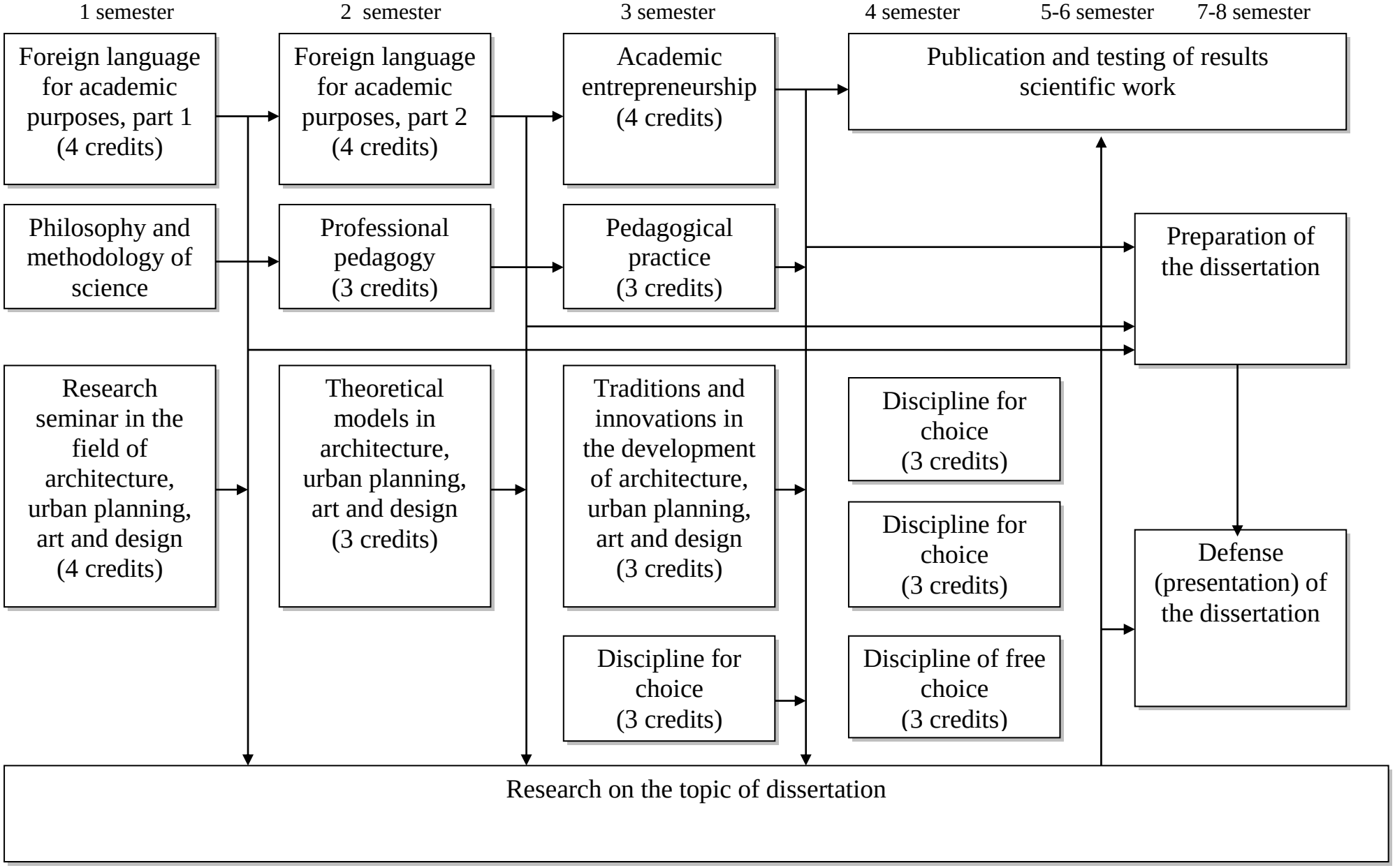
Legend: MKi – mandatory discipline, ELi – elective discipline,i – the number of the discipline in the list of components of the educational component, INT – integral competence, GCj – general competence, PCj – professional (special) competence, j – competence number in the list of competencies of the educational component.

5. Matrix for providing software learning outcomes relevant components of the educational component

	МК1.1.	МК1.2.	МК1.3.	МК1.4.	МК1.5.	МК1.6.	МК2.1.	МК2.2.	МК2.3.	EL 1.1.	EL 1.2.	EL 1.3.	EL 1.4.	EL 1.5.	EL 1.6.	EL 1.7.	EL 1.8.	EL 1.9.	EL 1.10.	EL 2.1.	EL 2.2.	EL 2.3.	EL 2.4.	EL 2.5.	EL 2.6.	EL 2.7.	EL 2.8.	EL 2.9.	EL 2.10.	EL 2.11.	EL 2.12.
KN 1							•	•	•														•	•			•	•			•
KN 2		•	•				•	•	•			•			•					•	•	•	•	•	•	•	•	•	•	•	•
KN 3		•	•				•	•	•			•								•	•	•	•	•	•	•	•	•	•	•	•
KN 4		•	•		•	•						•																			
KN 5		•	•		•	•	•				•	•	•		•	•	•	•	•	•		•	•			•				•	
KN 6	•			•	•	•				•				•																•	
SK 1		•	•		•	•						•										•	•	•		•	•	•	•		
SK 2		•	•		•	•	•	•	•			•				•		•		•	•	•	•	•	•	•	•	•	•	•	•
SK 3		•	•		•	•	•					•								•		•	•			•		•	•	•	
SK 4		•	•		•	•	•				•	•	•																	•	
SK 5		•	•									•			•					•		•	•	•		•	•	•	•		
SK 6	•			•	•	•				•				•																	
COM1	•			•	•	•				•				•																	
COM2	•			•	•	•				•				•																	
A&R1						•					•		•																		
A&R2						•					•																				
A&R3						•					•																				

Legend: MKi – mandatory discipline, ELi – elective discipline,i – the number of the discipline in the list of components of the educational component, KNm – knowledge, SKm – skills, COMm – communication, A&Rm – autonomy and responsibility, m - the number of the program result in the list of program results of the educational component.

6. Structural and logical scheme of the educational-scientific program of the third (educational-scientific) level of higher education in specialty 191 "Architecture and Urban Planning"



II. Scientific Component of the Educational and Scientific Program

The scientific component of the educational and scientific program provides for the postgraduate student to conduct his own scientific research under the guidance of one or two supervisors and to present its results in the form of a dissertation.
The dissertation for the degree of Doctor of Philosophy is an independent detailed study that proposes a solution to an actual scientific and applied problem in the specialty 191 "Architecture and Urban Planning", the results of which are characterized by scientific novelty and practical value and published in relevant publications.
The scientific component of the educational and scientific program is drawn up in the form of an individual plan of scientific work of a graduate student and is an integral part of the postgraduate curriculum.
An integral part of the scientific component of the educational and scientific program of graduate school is the preparation and publication of scientific articles, speeches at scientific conferences, scientific professional seminars, round tables, symposiums.

Topics of scientific research in the specialty 191 "Architecture and Urban Planning":

1. Nature, essence of architecture. Conceptual and terminological apparatus of architecture and urban planning.
2. Philosophical foundations of architecture and urban planning. Regulatory and legal framework for the management of architectural and urban planning activities.
3. Socio-economic, technical, aesthetic, technological and other factors in the development of architecture and urban planning and architectural form.
4. Methodology, methodology of research and evaluation of artificial object-spatial environment and its individual forms.
5. Regularities of architectural formation. Historical development of architectural and construction activities of man from ancient times to the present.
6. Aesthetics of the built environment and individual architectural forms.
7. Artistic problems of architecture. The relationship between architecture and art.
8. Regional and typological features of the development of architecture, architectural forms. Styles and stylistic features of architecture.
9. National policy of research, protection, registration, preservation and use of architectural heritage.
10. Methodology, techniques, principles and means of reconstruction of the historical environment and restoration of architectural monuments.
11. Optimization of functional, architectural and planning, compositional solutions of buildings and structures, taking into account regional climatic and socio-economic conditions, folk traditions, construction base, environmental protection, effective new construction methods.
12. Search for planning, architectural, structural and volumetric-spatial solutions of buildings and structures in difficult construction conditions.
13. Organization of the network, formation of types of buildings and complexes in the new economic system of the country.
14. Development of research methodology, improvement of methods of designing buildings and structures on the basis of modern computer technologies.

15. Search and development of new types of buildings and structures taking into account the preservation and improvement of environmental indicators.
16. Development of norms and standards regarding the location, functional use, architectural solutions of buildings and structures.
17. Development of principles and methods of reconstruction of buildings and structures in various conditions.
18. Search for new architectural and structural systems and their impact on the architecture of buildings and structures.
19. Theoretical foundations of the interdependence of architectural solutions of buildings and construction economics.
20. Socio-economic, demographic, environmental and aesthetic conditions that affect the formation of the urban environment.
21. Scientific definition of urban planning objects, their functional and planning parameters and evaluation criteria. Development of the basics of typology of urban planning and architectural and landscape objects.
22. Theory, methods and means of architectural and planning formation of urban planning objects.
23. Optimization of architectural solutions of settlements and regions, taking into account socio-economic, demographic, environmental and natural conditions on the basis of modern computer tools.
24. Improvement of design and planning works, regulation and management of the processes of functioning and development of regions, cities and villages, recreational and landscape areas using methods, modeling tools, applied informatics and heuristic solutions.
25. Methods of simulation modeling and multifactorial assessment of the quality of urban planning solutions at different levels and stages of design.
26. Patterns and trends of settlement, organization of transport infrastructure, formation of social facilities, landscaping, landscape architecture.
27. Forecasting of new promising settlements, reconstruction of existing ones.
28. Urbanization and ecology, resource conservation.
29. Interdependence of architectural and planning solutions and urban planning economics.
30. Aesthetics of urban planning.

III. Certification of postgraduate students

Certification of applicants for the degree of Doctor of Philosophy is carried out by a specialized academic council, permanently operating or formed for a one-time defense, on the basis of public defense of scientific achievements in the form of a dissertation.

A prerequisite for admission to the defense is the successful completion by the graduate student of his individual curriculum.

Applicants for the degree of Doctor of Philosophy defend their dissertations, as a rule, in a permanent specialized academic council in the relevant specialty, which operates in the higher education institution where the postgraduate student was trained. The Academic Council of a higher education institution has the right to submit to the National Agency for Quality Assurance in Higher Education documents for accreditation of a specialized academic council established for one-time defense, or apply to another higher education institution where a permanent specialized academic council operates.