



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Research and Project Studio 1A [S2Arch2E>PPB1A]

Course

Field of study
Architecture

Year/Semester
1/2

Area of study (specialization)
–

Profile of study
general academic

Level of study
second-cycle

Course offered in
English

Form of study
full-time

Requirements
elective

Number of hours

Lecture
0

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

5,00

Coordinators

dr hab. inż. arch. Adam Nadolny prof. PP
adam.nadolny@put.poznan.pl

Lecturers

Prerequisites

- the student has structured, theoretically based general knowledge covering key issues in architectural and urban design - the student has structured, theoretically based general knowledge covering key issues in the history of universal and Polish architecture, the history of urban planning and the history of contemporary architecture - the student has basic knowledge of contemporary development trends in the field of architectural and urban design - the student knows the basic methods, techniques, tools and materials used by architects in their work - the student knows and understands the basic concepts and principles of copyright law and the need to manage intellectual property resources - the student has the knowledge necessary to understand the social, economic, legal and other non- technical conditions of an architect's activity, and to take them into account in the practice of an architect - the student is able to obtain information from literature, databases and other, properly selected sources, also in English, is able to integrate information, interpret it, as well as draw conclusions and formulate and justify opinions - the student is able to communicate using various techniques in a professional environment and in other environments, also in English - the student is able to prepare and present a presentation oral, concerning specific issues using specialist vocabulary from the field of architecture and urban planning, construction, functional conditions and forms - the student understands the need for lifelong learning, is able to inspire and organize the learning process of others - the student is able to cooperate and work in a group, assuming different roles in it - the student is able to think and act in a creative and enterprising way

Course objective

The primary goal is to engage students in scientific and implementation projects carried out at the Faculty. Students in the final year of second-cycle studies have the opportunity to choose a lab whose subject best suits their interests and to familiarize themselves with the methodology of scientific research, with various methods and research tools. The lab provides the opportunity to prepare for doctoral studies and enables students to acquire the skills of conducting research. The key partial objectives: • Acquiring knowledge and skills in analyzing the state of research based on a literature review and identifying research gaps, • Practicing the collection of research material, its analysis and verification, as well as selecting appropriate research methods and tools, • Solving planning and design problems using scientific methods, • Preparing and presenting the scope and results of research in the form of a structured scientific presentation (15 minutes). The discussion following the presentation aims to highlight both the shortcomings and strengths of the work.

Course-related learning outcomes

Knowledge:

Knows and understands advanced analysis methods, tools, techniques and materials necessary to prepare design concepts in an interdisciplinary environment, with particular emphasis on interdisciplinary cooperation and the integration of research results with the design process and their application in architectural and urban practice;

Knows and understands the interdisciplinary nature of architectural and urban design, including the need to integrate knowledge from various fields (e.g. social, technical, environmental sciences) and its application in design and scientific research in cooperation with specialists.

Skills:

Is able to critically analyze the state of research in a selected research topic, including the assessment of scientific achievements, identification of research gaps and formulation of conclusions regarding further research directions and their application in architectural or urban design.

Is able to assess the usefulness of advanced research methods and tools for solving scientific and design problems and select and apply appropriate methods of data analysis and interpretation in the design process.

Is able to think creatively and critically when designing and implementing scientific research, taking into account interdisciplinary conditions, as well as formulate and test new research hypotheses, the results of which may influence design solutions.

Is able to integrate information from various sources (scientific literature, empirical data, research results), interpret them and conduct a detailed critical analysis in the context of the problem being studied and its impact on design decisions.

Is able to communicate using various techniques and tools in a scientific and interdisciplinary environment, including preparing and presenting research results in the form of a structured scientific presentation and conducting a scientific discussion on both research and design solutions resulting from the research.

Is able to work individually and in a team to carry out scientific and design research, including collaborating with other specialists, sharing knowledge and taking a leading role in selected aspects of the research and design process.

Is able to estimate the time needed to complete both the research process and the development of an architectural or urban design based on research results and manage the project work schedule.

Is able to formulate new research ideas, conduct experimental analyses, test innovative solutions and verify their validity in the context of a selected research problem and their implementation in design.

Is able to implement the principles of scientific integrity and methodological guidelines in conducting research in the field of architectural, urban and spatial design, taking into account current standards and good research practices, as well as adapt research results to real design needs.

Social competences:

Is capable of effectively use imagination, intuition, creative attitude and independent thinking, to take responsibility for design and research decisions, taking into account their social, environmental and spatial consequences, as well as to take care of the protection of the natural and cultural environment; Is capable of effectively cooperate in interdisciplinary teams, communicate with specialists from various fields and share knowledge and research results, as well as use modern information technologies and digital tools;

Is capable of make public appearances and present research and project results, including clear and

precise transfer of information in the academic and professional environment; Is capable of demonstrate ethical and social awareness in the research and design activities undertaken, including adherence to the principles of scientific integrity and professional responsibility, as well as actively participate in shaping the natural environment and cultural landscape by making conscious design decisions.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The final grade is calculated as a weighted average of partial assessments based on the following criteria:

1. Active participation in classes (10%)

- confirmed by attendance at no less than 2/3 of the scheduled sessions. More than three unexcused absences may result in a reduction of the final grade by 0.5 to 1.0.

2. Assessment of reliability and responsibility in completing assigned tasks within the research-design group (20%)

- reflects social competences, teamwork skills, and the ability to assume responsibility for shared activities.

3. Assessment of the semester research report - both textual and graphic components (40%)

- evaluates content quality, accuracy, consistency with project goals, and the ability to synthesize and present results.

4. Assessment of individual engagement and substantive contribution to the group's research process (10%)

- formative assessment based on observed involvement and the quality of participation in collaborative tasks.

5. Quality of presentation of research results in the group setting (15%)

- assesses communication skills, clarity of argumentation, coherence of message, and the visual presentation of findings.

The final grade is calculated as the weighted average of the above components.

Grading scale: 2.0; 3.0; 3.5; 4.0; 4.5; 5.0

Grade 2.0 (inadequate)

Design and research papers that are incomplete or incomprehensible, do not effectively present the essence of the issue being studied, nor do they demonstrate conscious application of scientific and design methodology. Lack of logical argumentation, critical analysis, and reference to theory.

Grade 3.0 (sufficient)

Design and research papers that are correct, but at a minimal substantive level. They contain a proposal to solve the issue being studied, but in a superficial manner, with limited analysis, and insufficient reference to scientific literature and the research process.

Grade 3.5 (sufficient plus)

Design and research papers that are correct, presenting a proposal to solve the issue together with a basic explanation of the process of arriving at the results. They demonstrate minimal reference to research theory and methodology, but without in-depth analysis and critical reflection.

Grade 4.0 (good)

Design and research papers with a solid substantive level, containing a logically justified proposal to solve the issue being studied. They present a clear line of reasoning, linking results to theory, and basic critical reflection on the research and design process. They demonstrate elements of a creative approach.

Grade 4.5 (good plus)

Design and research work of a high substantive and methodological level, presenting a comprehensive analysis of the problem and its solution. They demonstrate conscious use of research tools, good knowledge of the literature on the subject, and reliable critical reflection on the design and research process. A clear creative element and interdisciplinary approach to the issue are visible.

Grade 5.0 (very good)

Design and research work of an exceptional level, demonstrating high substantive, methodological, and analytical quality. They present clear and in-depth argumentation, referring to advanced scientific literature and research methods. They demonstrate in-depth critical reflection on the design and research process, clearly show the interdisciplinary conditions of the issue, and are characterized by an original, creative approach.

Programme content

The primary goal is to engage students in scientific and implementation projects carried out at the Faculty. Students of the second semester of second-cycle studies have the opportunity to choose a lab whose subject best suits their interests and to familiarize themselves with the methodology of scientific research, with various methods and research tools. The lab provides the opportunity to prepare for doctoral studies and enables students to acquire the skills of conducting research.

Course topics

Research and Project Studio_1a (IAiPP) covers issues from the following areas: Mitigation and adaptation to climate change, Regenerative urban planning, City as a set of spatial, compositional and ideological values in the 21st century, AI and digital design and research tools, Perception of architecture and art: analyses in traditional, qualitative and quantitative research.

1. Discussion of the main research topics and tasks and the conditions for passing the subject. Indication of the basic literature on the subject and data sources.
2. Selection of topics, division into research and design teams. Variants for individual topics. Goals, tasks and work schedule of individual groups.
3. Theoretical classes: principles and stages of research work, research methods, data sources. Analysis of the state of knowledge, defining the research problem - consultations, discussion
4. Analysis of data availability and their acquisition - consultations on challenges and research tasks. Asking research questions and hypotheses and their verification.
5. Data acquisition, their analysis and verification of hypotheses. Materials, methods and research tools - data analysis in solving problems and making spatial decisions
6. Implementation of research tasks according to the adopted methodology.
7. Implementation of research tasks according to the adopted methodology.
8. Partial review: presentation of research materials and preliminary results
9. Consultation of research materials and results - discussion
10. Consultation of research materials and results - discussion
11. Development of team research results in text and graphic form
12. Development of team research results in text and graphic form
13. Presentation of research results.
14. Presentation of research results.
15. Summary of exercises. Submission of written reports from the conducted research.

Thematic groups (the launch of a group is related to the number of students in a given year and their interest in particular topics - the number of people necessary to launch a group is 15):

1. Adaptation to climate change

The research topics include issues related to risk analysis and adaptation of cities to climate change, urban water management, increasing urban resilience, adaptation plans and activities, climate and environmental protection, including water resources, efficiency of blue-green infrastructure and green architecture, etc. The program content includes presentation of scientific and implementation projects carried out at the Faculty, research methods, principles of writing and evaluating scientific articles. The tasks undertaken may be directly or indirectly related to the individual topic of the diploma thesis. They may also include data collection and planning and design studies with scientific justification of the consequences (socio-cultural, environmental, economic benefits and costs) of spatial decisions made.

2. Urban Revitalization

The studio focuses on issues related to urban revitalization, taking into account architectural, urban, and social aspects. The research includes strategies for restoring the historical and cultural value of urban spaces, integrating modern solutions with the existing urban fabric, and improving the quality of life for residents. The goal of the studio is to develop innovative revitalization methods that support sustainable development and the harmonious transformation of cities.

3. Continuity of Urban Morphology

The research studio focuses on the analysis and interpretation of the concept of continuity in the context of urban development. The research encompasses historical, spatial, and social aspects, as well as the relationships between architectural heritage and contemporary urban processes. The goal is to identify mechanisms that support the harmonious transformation of the urban fabric and to develop strategies that integrate new architectural solutions with the existing urban context in relation to scientific research.

4. Sustainable Architecture

The studio conducts research on sustainable architecture, focusing on design principles that align with ecology, energy efficiency, and harmony with the environment. It analyzes innovative construction technologies, the use of environmentally friendly materials, and strategies for minimizing the carbon

footprint in the design and operation of buildings. The goal of the studio is to develop solutions that promote sustainable urban development and enhance the quality of life for users of architectural spaces

5. Applied Art.

The studio conducts research on the relationships between the fields of architecture and applied art, focusing on (based on) the principles of design consistent with beauty, utility, functionality and the possibilities of pro-ecological use of post-industrial waste. Interdisciplinary research concerns the search for innovative solutions for modular plane and surface forms made of fabrics, with the possibility of applying forms in architecture and interior design. In addition to making prototypes, the studio's goal is to develop solutions supporting sustainable development of cities and improving the quality of life of users of architectural spaces using environmentally friendly materials, based on the latest construction technologies and strategies for minimizing the carbon footprint in the process of designing and using buildings.

Teaching methods

1. Project-Based-Learning, Problem-Based-Learning
2. Panel discussions, brainstorming, case studies, research experiments, workshops, data analysis
3. eKursy (a system supporting the didactic process and distance learning)
4. In-situ field research

Bibliography

Basic:

Aksamija A., (2021). Research Methods for the Architectural Profession

Samuel F., Dye A., (2019). Demystifying Architectural Research Adding Value to Your Practice, RIBA

Rajasekar, D., & Verma, R. (2013). Research methodology. Archers & Elevators Publishing House.

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. Journal of business research, 104, 333-339.

Szokolay, S. (2014). Introduction to Architectural Science The Basis of Sustainable Design

White, E. B., & Strunk, W. (2023). The elements of style. Open Road Media.

Szokolay, S. (2014). Introduction to Architectural Science The Basis of Sustainable Design

Additional:

Due to the different nature and topics of the work conducted in each group, the literature for the course is determined on an ongoing basis by the instructor.

Breakdown of average student's workload

	Hours	ECTS
Total workload	125	5,00
Classes requiring direct contact with the teacher	60	2,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	65	2,50