COURSE DESCRIPTION CARD - SYLLABUS

Course name
Theory and Research Methods in Architectural Design [S2Arch2>TiMBwPA]

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
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
0

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

2,00

Coordinators

prof. dr hab. inż. arch. Piotr Marciniak
piotr.marciniak@put.poznan.pl

dr inż. arch. Piotr Zierke
piotr.zierke@put.poznan.pl

Lecturers

Prerequisites

- structured, theoretically founded general knowledge covering key issues in the field of architectural design; - detailed knowledge of the fields of study related to Architecture; - basic knowledge about development trends in architectural design - basic knowledge necessary to understand social, economic, legal and non-technical conditions of architectural design - obtaining information from literature, databases and other, properly selected sources, also in English, integrating information, interpreting it, as well as drawing conclusions and formulating and justifying opinions; - the ability to correctly infer on the basis of data from various sources. - student understanding the need for lifelong learning, is able to inspire and organize the learning process of other people; - the student is aware and understands the non-technical aspects and effects of engineering activities, including its impact on the environment and the related responsibility for decisions made; - the student is able to interact and work in a group, assuming various roles in it.

Course objective

Introduction to the subject of research methods and techniques used during architectural education, during academic work, as well as design practice in the architectural profession. In leading to architectural research and modern diagnostic and measurement methods. To understand the essence and complexity of scientific research issues in the field of architecture. To draw attention to the most commonly used research methods and techniques in architecture, as well as the most common mistakes made.

Course-related learning outcomes

Knowledge:
Knows and understands theoretical basis of scientific reasoning and conducting research in the field useful for the implementation of complex design tasks, as well as the interpretation of scientific studies in the scientific discipline - architecture and town planning on the basis of learned research methods such as the method of logical argumentation, the method of model and simulation research, the method of quantitative and statistical research, the method of qualitative research, case studies;

Skills:
Can integrate advanced knowledge from various areas of science, including technical sciences, social sciences, economics, ecology, spatial management while solving complex engineering tasks;
Can recognize the importance of non-technical aspects and effects of an architect's design activity, including its impact on the cultural and natural environment, and take responsibility for technical decisions made in the environment and for the transfer of cultural and natural heritage to future generations on the basis of the currently developing paradigm on environmental design;
Can recognize systemic and non-technical aspects, including environmental, cultural, artistic, economic and legal aspects in the process of architectural, urban and planning design with a high degree of complexity;
Can formulate statements of a critical analysis nature in the field of architecture, as well as present and synthetically describe the ideological basis of the project based on the assumptions made (method of logical argumentation);
Can use properly selected advanced computer simulations (model and simulation research method), analyzes and information technologies, supporting architectural and urban design, as well as evaluate the obtained results and their usefulness in design, and draw constructive conclusions (method of logical argumentation);

Social competences:
Is capable of formulating and transfering information and opinions to the society on the achievements of architecture and town planning, their complex conditions and other aspects of the architect's activity on the basis of learned research methods and techniques;;
Is capable of formulating reliable self-assessment, formulating constructive criticism regarding architectural and urban planning activities, as well as accepting criticism of the solutions presented by them, responding to criticism in a clear and factual manner, also using arguments referring to the available achievements in the scientific discipline, and creative and constructive use of criticism .

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

LECTURES: conclude with a written exam. Two credit terms are provided, with the second term being a correction term. A passing grade is obtained after exceeding 50% of correct answers. Accepted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0

Programme content

Lectures and project exercises provide a theoretical introduction to the subject of research methods. During them, students learn the basic concepts used in scientific work, research methods and research techniques, examples of their practical application and the most common mistakes.

Course topics

LECTURES:
PART 1 (responsible dr inż. arch. Piotr Zierke):

1. Introduction - goals of scientific research and research goals in architecture, basic concepts used in scientific work, research methods and research techniques and examples of their practical application.
2. Research methods in architecture - historical and interpretative research, quantitative and qualitative research.
3. Research methods in architecture - case studies, the method of logical argumentation.
4. Research methods in architecture - model research, simulation, heuristic, progostic and other methods.
5. Research techniques in architecture - literature research, site inspection, collection of documentation, measurement.
6. Research techniques in architecture - statistical, survey and comparative techniques, environmental interviews.
7. Research techniques in architecture - correlations, scaling assessments and techniques supporting decision-making processes in design (SWOT analyzes, brainstorming, etc.), errors in research work.
PART 2 (responsible prof. dr hab. inż. arch. Piotr Marciniak):
8. Methodology of archival research and literature studies.
9. modern diagnostic methods in research of historical objects - part 1
10. modern diagnostic methods in research of historical objects - part 2.
11. measurement techniques and digital inventory methods. 3D scanning, photogrammetry, total station.
12 Introduction to architectural research of wooden objects.
13. introduction to architectural research of masonry objects.
14. architectural research of modernist objects.
15. Summary of the class and exam.

Teaching methods

1. Lecture with a multimedia presentation,
2. Conversation lecture,
3. Problem lecture,
4. ekursy.put.poznan.pl (a system supporting the teaching process and distance learning).

Bibliography

Basic:
Groat L., Wang D., 2013, Architectural Research Methods, John Wiley & Sons, Inc., Hoboken, New Jersey.
Niezabitowska E. D., 2014, Metody i techniki badawcze w architekturze, Wydawnictwo Politechniki Śląskiej, Gliwice.
Arszyński A., Prarat M., Schaaf U., Zimnowoda-Krajewska B. (red.), Badania architektoniczne. Historia i perspektywy rozwoju, Toruń 2015
Brykowska M., Metody pomiarów i badań zabytków architektury, Warszawa 2003

Additional:
Ariffin N. A. M., Rashid M. M., Salleh N. H., 2013, Metodologies in Architectural Research, IIUM Press, Kuala Lumpur.
Creswell J. W., 2003, Research Design: Qualitative, Quantitative and Mixed Method Approaches, Sage Publications, Thousand Oaks.
Dean A., Voss D., 1999, Design and Analysis of Experiments, Springer-Verlag, New York.
Kłos Z. (red.), 2011, Rozprawy naukowe, Wydawnictwo Politechniki Poznańskiej, Poznań.
Leeuwen van T., Jewitt C. (red.), Handbook of visual analysis, Sage Publications Ltd, Los Angeles, London, New Delhi, Singapore.
Sanoff H., 1991, Visual Research Methods in Design, Van Nostrand Reinhold, New York.
Sommer R., Sommer B., 2002, A practical Guide to Behavioral Research: Tools and Techniques, The Oxford University Press, New York.
Wisłocki K., 2013, Metodologia i redakcja prac naukowych, Wydawnictwo Politechniki Poznańskiej, Poznań.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	1,00