COURSE DESCRIPTION CARD - SYLLABUS

Course name
Thematic Lecture [S2Arch2>WS]

Course

Field of study
Architecture

Year/Semester
1/1

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
30

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

basic knowledge of architectural and urban design basic knowledge of the history of architecture basic knowledge of interior design and acoustics, unqualified the student is able to creatively use available Polish and English literature the student has basic architectural and urban design skills the student is able to use the reverberation time formula in a practical way in the acoustic design of interiors is aware of the need for education in fields related to architecture can work creatively in a group the student has structured, theoretically based general knowledge covering basic issues in lighting technology, the student has basic knowledge about the role and importance of artificial light in architectural and urban design, the student has basic knowledge necessary to understand the social, economic, legal and non-technical conditions for the implementation of artificial light systems in the areas of human life and functioning. 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, draw conclusions and formulate and justify opinions, the student is able to critically analyze the functioning and evaluate existing solutions, systems and processes, is able to communicate using various techniques in professional and other environments the student understands the need for lifelong learning, is able to inspire and organize the learning process of other people, understanding the need to constantly expand one's competences, readiness to cooperate within a team. the student has structured, well-founded theoretical general knowledge covering key issues in the field of building physics, ventilation, heating, water supply and sewage installations the student knows the basic

methods, techniques and materials used in solving simple engineering tasks in the field of building physics, ventilation, heating, water supply and sewage installations the student has basic knowledge of development trends in the field of energy-saving and passive construction the student is able to use information and communication techniques appropriate to carry out tasks typical of engineering activities the student understands the need for lifelong learning, is able to inspire and organize the learning process of other people, the student is aware of the importance and understands 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 cooperate and work in a group, taking on various roles in it.

Course objective

The aim of the lecture is to make students aware of the interdisciplinary and complex nature of architectural design and to familiarize listeners with advanced design issues with particular emphasis on the specialized use of related fields in architecture. It is important to familiarize students with the diverse points of view and conditions of various industries and the need to reconcile and take them into account resulting from the team and multi-disciplinary nature of architectural activities.

Course-related learning outcomes

Knowledge:
Knows and understands the principles of project coordination in terms of health and safety regulations, fire protection, sanitation, road, lighting, and acoustics.
Knows and understands issues related to urban acoustics and acoustic ecology design. He knows and understands matters related to intersectoral coordination, considering the needs of people with disabilities.
Knows and understands advanced methods of analysis, tools, techniques, and materials necessary for preparing design concepts in an interdisciplinary environment, with particular emphasis on intersectoral cooperation.
Knows and understands the interdisciplinary nature of architectural and urban design and the need to integrate knowledge from other fields and their application in the design process in cooperation with specialists from these fields.
Knows and understands advanced issues of building technology and installations, health and safety regulations, fire protection, and building physics, which require intersectoral coordination combining key architectural, urban, and planning design issues.
Knows and understands technical and building regulations in the context of interdisciplinary coordination.

Skills:
Can assess the usefulness of advanced methods and tools for solving simple and complex engineering tasks, typical for architecture, urban planning and spatial planning in the context of interprofessional cooperation
Can think creatively and act, taking into account complex and multifaceted conditions of design activity requiring sectoral integration of fields related to architecture, and to express their own artistic concepts in architectural and urban planning design, taking into account requirements of other branches;
Can integrate information obtained from sources in fields related to architecture, interpret and critically analyse it in detail and draw conclusions from it, formulate and justify opinions and demonstrate their relation to the design process, based on the available scientific output in disciplines related to architecture;
Can communicate using a variety of techniques and tools in a professional and interdisciplinary environment in the fields relevant to architectural and urban design and spatial planning;
Can work individually and in a team, including with specialists from other industries, and take the leading role in such teams;
Can take into account the time needed to complete a complex design task, taking into account the time requirements of other branches involved in the design process;
Can formulate new ideas and hypotheses, analyse and test novelties related to engineering and research problems in interprofessional coordination;
Can produce architectural and construction documentation in appropriate scales concerning the requirements of related branches;
Can formulate statements of critical analysis about architectural design, understood as a combination of interprofessional cooperation,

Can use appropriately selected analyses and information technologies of related disciplines, supporting architectural and urban design, as well as assess the obtained results and their usefulness in design and draw constructive conclusions;
Can prepare and deliver a presentation on the detailed results of an engineering design task concerning interprofessional cooperation, using various communication techniques, including a presentation formulated in a commonly understood manner;
Can appropriately apply professional and ethical norms and rules as well as legal regulations in the scope of architectural, urban planning and spatial planning design, taking into account requirements of other branches.

Social competences:
IIs capable of effectively using imagination, intuition, creative attitude and independent thinking to solve complex design problems concerning the requirements of related branches;
Is capable of taking up the role of a coordinator of activities in the design process, managing teamwork and using interpersonal skills (conflict resolution, negotiation skills, delegation of tasks), following the rules of teamwork and taking responsibility for everyday tasks and designs presented by professionals;
Is capable of taking responsibility for shaping the natural environment and cultural landscape, including preservation of the regional, national and European heritage, taking into account requirements of disciplines related to architecture.
Is capable of preparing to formulate and communicate information and opinions to the public on the achievements of architecture and urban planning, their complex conditions and other aspects of the architect's activity related mainly to cooperation with disciplines related to architecture;
Is capable of preparing to carry out sound self-evaluation, to formulate constructive criticism of architectural and urban planning activities in the context of interprofessional cooperation, as well as to accept criticism of the solutions they present, to respond to criticism clearly and factually, also using arguments referring to the available body of work in the scientific discipline, and to use criticism creatively and constructively.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The basis for passing the exam is a final test, which ends the series of lectures on the subject
The colloquium takes the form of a single-choice test that checks knowledge of basic acoustic parameters and understanding of design problems in architectural acoustics.
Formative assessment: colloquium assessment
Adopted grading scale: 2.0; 3.0; 3.5; 4.0; 4.5; 5.0
Summative assessment: assessment obtained during the colloquium
Adopted grading scale: 2.0; 3.0; 3.5; 4.0; 4.5; 5.0
The passing threshold is 50%

Programme content

During the lecture, listeners will be familiarized with advanced design issues with particular emphasis on the specialized use of related fields in architecture. Students learn about design issues for interiors with qualified acoustics and gain advanced knowledge of space formation in order to design such facilities as functionally as possible. In addition, they gain knowledge about acoustic issues in urban planning, related to the issue of sound propagation in urban spaces.
In the field of electrical installations and lighting, students learn the basic photometric quantities as a tool for formulating lighting guidelines and recommendations and controlling light parameters in the lighting of architectural interiors, standardization of architectural interiors with electric (artificial) light, issues of measurement and normalization and calculations of road lighting, energy efficiency and durability of lighting equipment - economics, ecology and environment, elements of renewable energy in the lighting of architectural interiors and urban lighting, calculations, simulation and visualization distribution of lighting parameters for design purposes, basic IT tools for the implementation of numerical and visualization lighting calculations.
As part of the education program, during the lecture, the student obtains the necessary information on selected issues of building physics, ventilation, heating, water supply and sewage systems. The student learns the technical and legal regulations and requirements for the above-mentioned installations.
In the context of the above-mentioned content, the student learns the legal and practical conditions for the application of occupational health and safety and fire protection regulations in the context of

architectural and urban design. Issues related to the practice and regulations related to road design in both urban and architectural contexts are discussed.
The lectures include original lectures by invited specialists on the discussed program issues, concerning practical and theoretical aspects of the interdisciplinary issues discussed.

Course topics

1. Interbranch coordination.
2. Ecological acoustics. Soundscape, soundmark. Acoustics in the city. Noise maps. Noise protection. Acoustic screens. The influence of greenery.
3. Introduction to the issues of architectural acoustics in rooms with increased acoustic requirements. Rooms with qualified acoustics. Function and volume, and required reverberation time. The shape of the room. Ceiling and wall profile. Audience layout. Method of determining the delay time of the first reflection. Selection of armchairs.
4. Arrangement of sound reflecting materials. The influence of balconies on the acoustics of the hall. Architectural acoustics of concert halls, opera and drama theaters. Stage shaping issues. Shaping the orchestra moat, the concert hall stage, the organ in the concert hall. Multifunctional rooms with adjustable acoustics. Rehearsal rooms. Technical rooms. Adapting the room for sound.
5. Acoustic guidelines for church design. Disposition of finishing materials, sound absorption by air, shaping the conditions of sound propagation in the room, acoustic criteria for the location of the organ and choir ensemble. The volume of the room and the size of the instrument, the location of the instrument - liturgical, acoustic and thermal considerations, the location of church bells.
6. Selected issues and problems in the field of applying solutions that reduce energy consumption in buildings. Selected issues regarding fire safety.
7. Acquiring the latest knowledge in the field of selected issues of heating, ventilation, air conditioning and water and sewage installations in various types of facilities.
8. Transfer of knowledge in the field of electrical and lighting installations: basic photometric quantities and their units,basics of lighting equipment and the reaction of light with matter,
9.The issues concerning the need to standardize lighting and its selected parameters, standardization of architectural interiors with electric (artificial) light,issues of standardization, measurements and calculations of road lighting,
10. Lighting issues for simple and complex urban planning (including small architecture, water, greenery and illumination of architectural structures), issues of economics, ergonomics and energy of lighting systems in relation to architectural interiors and urban layouts, issues of calculations, simulations and visualization of lighting parameter distributions for design purposes.
11. Practical application of regulations and requirements regarding occupational health and safety in the context of multi-disciplinary solutions, integrating them in architectural and urban works.
12. The importance and practical application of fire protection regulations in the installation, spatial and road aspects in the context of inter-industry coordination.
13. Aspects of communication and design of roads, squares and internal communication as an integral element of an architect's work in an interdisciplinary team.
14. Practical aspects related to running a business in the field of architectural and urban design.
15. Passing the lectures.

Teaching methods

1. Problem-based lecture.
2. Lecture with multimedia presentation.
3. Demonstration of acoustic tests.
4. Presentation of acoustic materials.
5. Case study.
6. ekursy.put.poznan.pl (system supporting the teaching process and distance learning).

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20. PN-EN 13201-3:2005 (U) Oświetlenie dróg. Część 3: Obliczenia oświetleniowe.
21. PN-EN 13201-4:2005 (U) Oświetlenie dróg. Część 4: Metody pomiarów parametrów oświetlenia.
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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