COURSE DESCRIPTION CARD - SYLLABUS

Course name
Integrated Design [S2Arch2E>PZ]

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
compulsory

Number of hours

Lecture
0

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

7,00

Coordinators

dr inż. arch. Agnieszka Ptak-Wojciechowska
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Lecturers

Prerequisites

• the student has ordered and theoretically founded general knowledge covering key issues in the field of architectural design, • the student has a structured basic knowledge of designing service facilities, • the student has basic technical knowledge in the field of architecture, • the student has basic knowledge of ergonomics, • the student has basic knowledge of development trends in architectural design, structured general knowledge about development trends in designing service architecture, • the student has basic knowledge necessary to understand the social, economic, legal and non- technical determinants of architectural design. • 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 has basic skills allowing for the presentation of architectural concepts characteristic of an architectural professional environment, • the student is able to prepare and present in Polish language presentations of the applied solutions including the conceptual design, • the student has the ability to self-studying, • the student is able to use the characteristic means of artistic expression for the implementation of tasks typical for shaping an architectural composition, • the student is able to use the techniques of hand drawing in the process of shaping a simple, small- scale architectural form and on their basis to interpret and draw conclusions, • the student is able to make spatial models (mock-ups) that allow to conduct simulations and experiments with the use of various materials, and to see non-technical aspects on their basis, including, among others, perceptual processes •

understanding the need for lifelong learning, the ability to inspire and organize the learning process of others, • awareness and understanding of non-technical aspects and effects of engineering activities, including its impact on the environment and the related responsibility for decisions made, • the ability to cooperate and work in a group, taking different roles in it, • the ability to correctly assess and define priorities to achieve a specific goal, • the ability to search for optimal solutions: to correctly identify and resolve dilemmas with regard to various spatial situations on an architectural scale.

Course objective

• improving the methods of recognizing the relationship between the designed object and its surroundings - the spatial and social context, • learning the methodology for developing architectural concepts of service facilities of high and high complexity, • learning and perfecting a variety of technical and material measures necessary to present an architectural concept, • improving methods of shaping the basic relationships between a person and an object, • improving the skills of shaping the architectural composition and future visions regarding its shaping, • learning about an extended repertoire of basic issues related to elements of urban composition, • improving basic tools and materials helpful in presenting the achieved solutions in the field of architectural composition, • learning the relationship between a flat drawing and three-dimensional interpretation, • improving the skills of simultaneously shaping projections and the body of the building, • mastering the use of known functional diagrams in various configurations, • developing the ability to graphically present an architectural concept (projections, sections, elevations), • training the skills of freehand drawing and other methods of synthetic recording of the qualitative features of an architectural object, • training the skills of building mock-ups (working and target), • broadening the knowledge and skills of making concept drawings (projections, sections, elevations) based on construction knowledge, • practicing group work and finding oneself in different roles, • implementation of the principles and guidelines of integrated and universal design.

Course-related learning outcomes

Knowledge:
Knows the issues related to integrated architectural design of varying degrees of complexity, from simple tasks to objects with a complex function in a complex context, in particular: service facilities, public utility facilities and their complexes of varying scale and complexity in an open landscape or urban environment;
Knows the principles of integrated universal design for public utility buildings and service facilities and the principles of ergonomics, including ergonomic parameters necessary to ensure full functionality of the designed space and facilities for all users, in particular for people with disabilities;
Knows advanced analysis methods, tools, techniques and materials necessary to prepare design concepts for public utility facilities and service facilities in an interdisciplinary environment, with particular emphasis on inter-industry cooperation in the context of integrated design;
Knows the interdisciplinary nature of architectural design for public utility facilities and service facilities and the need to integrate knowledge from other fields, as well as its application in the design process in cooperation with specialists in these fields.

Skills:
Is able to design a simple and complex architectural object with a public utility and service function, creating and transforming space in order to give it new values - in accordance with a given program, taking into account the requirements and needs of all users, spatial and cultural context, technical and non-technical aspects;
Is able to critically analyze the conditions and valorize the state of land development, taking into account the principles important for the design of buildings with a service and public utility function.
Is able to assess the usefulness of advanced methods and tools for solving simple and complex engineering tasks, typical of service architecture, and select and apply the appropriate methods and tools in integrated design;
Is able to critically analyze and evaluate the project and the method of its implementation in the field of modernization and supplementation of architectural and urban structures with cultural values, taking into account the protection of these values and ensuring the appropriate methods and techniques,
Is able to think creatively and act, taking into account the complex and multi-faceted conditions of designing service and public utility facilities and expressing their own artistic concepts in integrated architectural design; Is able to integrate information regarding the design of service and public utility architecture obtained from various sources, interpret and critically analyze them in detail and draw

conclusions from them, as well as formulate and justify opinions and demonstrate their relationship with the design process, based on the available scientific achievements in the discipline;
Is able to communicate using various techniques and tools in a professional and interdisciplinary environment within the scope appropriate for the architectural design of service facilities;
Is able to organize their own work, cooperate with other people, including specialists from other industries, and take a leading role in such teams;
Is able to estimate the time needed to complete a complex design task;
Is able to formulate new ideas and hypotheses, analyze and test novelties related to engineering problems and research problems in the field of integrated architectural design
Is able to prepare architectural and construction documentation in appropriate scales in relation to the conceptual architectural design;
Is able to implement the principles and guidelines of universal design in architecture, urban planning and spatial planning.

Social competences:
Knows the methods of effectively using imagination, intuition, creative attitude and independent thinking to solve complex design problems;
is ready to make public speeches and presentations on integrated design, including presentations of the effects of individual and team work;
is prepared to take on the role of coordinator of activities in the design process, manage teamwork and use interpersonal skills (conflict resolution, negotiation skills, delegating tasks), comply with the principles of teamwork and take responsibility for joint tasks and projects;

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture is ending with an exam.
There will be two examining sessions.
Formative assessment:
- active participation in the lecture
Summative assessment:
Grade given for a written exam.
Approved grading scale: 2.0; 3.0; 3.5; 4.0; 4.5; 5.0
Acheiving a positive grade for the modelue is depending on acheiving all listed above learining outcomes by a Student.
Project:
The conditions for passing the project are standardized requirements, uniform for all groups. This enables student works performed in all project groups and by different teachers to compete with each other.
Important project evaluation criteria:
• knowledge of functional assumptions necessary to develop the concept of a service facility with an appropriate degree of complexity (depending on the level of mastery of design art in different semesters);
• the ability to critically perceive and analyze the surroundings of the designed facility and to draw conclusions that are the basis and one of the guidelines for shaping the architectural form,
• method of shaping the architectural composition based on the principles resulting from theoretical studies,
• the quality of the correlation of the spatial solution with the functional layout,
• the quality of shaping the architectural composition evoking specific planned emotions, reactions, associations and moods,
• quality of the technical mapping of the spatial composition in the form of flat sections (projections, sections, views, etc.), axonometry, sketches and perspectives,
• the quality of the technical representation of the spatial composition in the form of mock-ups,
• the way of using basic tools and materials helpful in presenting the achieved solutions in the field of architectural composition,
• quality of presentation of design solutions in the form of composed / designed charts, aesthetics and legibility of presentation of design solutions.
The following elements are assessed:
• completeness of work in the analytical, design and descriptive parts, graphic quality of the project,
• adopted design solutions,

• connections of the designed building with the surroundings,
• relations between public, semi-private and private space,
• the way of meeting the psychophysical and social needs of users,
• innovative formal and functional solutions,
• correct resolution of technical issues related to the service facility,
• aesthetics and legibility of the graphic and descriptive parts as well as the mock-up.
Formative assessment:
• partial reviews, including individual project tasks, checking the advancement of the student's work, presented in the forum of the group, joint discussion,
• partial reviews, including individual project tasks, checking the advancement of the student's work, presented in front of other tutors - brainstorming, joint discussion,
• approved grading scale: 2.0; 3.0; 3.5; 4.0; 4.5; 5.0.
Summative assessment:
• final review, including the last project task, which is a summary of the knowledge and skills acquired during the implementation of previous projects, presentation on the forum of a group or at a collective review in the presence of other leaders,
• a comprehensive review of previously performed topics to verify the student's development in the context of the last project task,
• the condition for passing the course is obtaining positive marks from all reviews,
• approved grading scale: 2.0; 3.0; 3.5; 4.0; 4.5; 5.0

Programme content

Each time the student has the option to choose the subject of the project (in line with the general profile of the subject), and with the consent of the tutor, he can change the project group.
The standard of the semester exercise includes the design of a complex service facility located in a compact or free-standing development, fully adapted to the surroundings.
An important element of the assessment is the degree of implementation of the principles and guidelines of universal design.
Analytical part:
-analysis of situational and altitude maps and other cartographic data (orthophotos, aerial and satellite photos),
- qualitative analyzes: scenic studies, analysis of compositional relationships, studies of the architectural environment and genius loci, documentation of landscape values
- quantitative analyzes: land absorption studies, identification of the location potential, functional connections with the surroundings, pedestrian and road communication, identification of service infrastructure, obtaining current local law regulations, short analysis of building conditions and land development, SWOT analysis and determining the profile of the object being the subject of design, determining the social structure of the target users.
Synthetic (design) part:
Defining an architectural form in a multi-variant iterative process that includes the following steps:
• creating a functional program of the designed complex, division of the facility and the plot area into functional zones;
• assigning to functional zones appropriate formal patterns of use (partial functional solutions),
• translating the applied patterns selected in the previous step into the tectonics of the object (along with its surroundings) and its compositional structure (translating applied syntax into formal syntax),
• formulation of an architectural language appropriate for the adopted formal solutions,
• implementation of universal design principles and guidelines,
• technological integration of the form and function of the complex into an integral architectural composition through the selection of appropriate techniques for the implementation of the facility (appropriate construction and technical equipment of the building, adequate elements of land development - floors, greenery, lighting and accompanying facilities such as a playground for children, a garbage can, etc.),
• technical record of the facility in the form of an architectural design (along with the land development design),
• presentation of the architectural design using selected graphic methods and media, within standardized framework (board format, mock-up of the designed object on the plot),
• analysis of projects made in a student group, discussion of colleagues' presentations,
Required design elements: drawing and photographic inventory, analytical part, plot development plan, projections of all floors, sections (min. 2), elevations including the materials used and colors,

perspectives: external and internal, descriptive part: area and volume indicators, summary area, urban model (with the surroundings on a scale of 1: 500), architectural model (with the plot 1: 100)

Course topics

Lectures:
1. Introduction. The concept of integrated design; architecture as a system [Lecturer: dr hab. inż. arch. Maciej Janowski, prof. PUT]
2. Museums and art galleries [Lecturer: dr hab. inż. arch. Maciej Janowski, dr inż. arch. Agnieszka Janowska]
3. University campuses, scientific laboratories. Airports [Lecturer: mgr inż. arch. Krzysztof Frąckowiak]
4. Theatre architecture [Lecturer: mgr inż. arch. Bartosz Gurawski]
5. University buildings [Lecturer: prof. dr hab. inż. arch. Sławomir Rosolski]
6. Large auditoriums, stadiums [Lecturer: dr inż. arch. Maria Sipińska-Małaszyńska]
7. Hotels [Lecturer: mgr. inż. arch. Włodzimierz Błądek]
8. Sports facilities [Lecturer: mgr inż. arch. Bartosz Jarosz, mgr inż. arch. Paweł Świerkowski]
9. Acoustic issues in architecture [Lecturer: mgr Jakub Dumanowski]
10. Sacred spaces in architecture: the Christian church [Lecturer: dr inż. arch. Borys Siewczyński]
11. Sacred spaces in architecture: the mosque [Lecturer: mgr inż. arch. Mohammad Mahdi Mohammadi]
12. Integrated design [Lecturer: prof. dr hab. inż. arch. Robert Barełkowski]
13. Civil protection and civil defence in architecture [Lecturer: dr inż. arch. Adam Siniecki]
14. Office buildings. Architecture and music [Lecturer: prof. dr hab. inż. arch. Stanisław Sipiński]
15. Final assessment/ exam

Exercises:
Individual and group consultations, partial reviews and final review.

Teaching methods

1. Design exercises are individual consultations conducted in a student group. Discussing and correcting the solutions used in the project with the participation of all students in the group; discussion of specific cases of repetitive design problems.
2. Lecture with a multi-media presentation.
3. eLearning eKursy

Bibliography

Basic:
1. Bańka A., Architektura psychologicznej przestrzeni życia. Behawioralne podstawy projektowania architektonicznego, Gemini S.C., Poznań 1999.
2. Fikus M., Przestrzeń w zapisach architekta, Agencja Wydawnicza Zebra, Kraków 1999.
3. Gropius W., Pełnia architektury, wyd. Karakter, Kraków 2014.
4. Le Corbusier, W stronę architektury, Fundacja Centrum Architektury, Warszawa 2012.
5. Sipińska E., Architektura mieszkaniowa i usługowa w programach nauczania. Tom 1., Wydawnictwo Politechniki Poznańskiej, Poznań, 2011.
6. Sipińska E., Architektura mieszkaniowa i usługowa w programach nauczania. Tom 2., Wydawnictwo Politechniki Poznańskiej, Poznań, 2012.
7. Zumthor P., Myślenie architekturą, Karakter, Kraków 2010.
8. Gzell S. (red.), Architektura Urbanistyka Nauka, PWN, Warszawa 2019.
9. De Graaf R., Cztery ściany i dach. Złożona natura prostej profesji, Instytut Architektury, Narodowy Instytut Architektury i Urbanistyki, Kraków-Warszawa, 2019.
10.Rasmussen S. E., Odczuwanie architektury, Karakter, Warszawa, 2015.

Additional:
1. Giedion S., Przestrzeń, czas, architektura. Narodziny nowej tradycji, PWN, Warszawa 1968.
2. Lewicka M., Psychologia miejsca, Scholar, Warszawa 2012.
3. Rewers E. (red.), Przestrzeń, filozofia, architektura, Humaniora, 1995
4. Porębski M., Ikonosfera, PIW, 1987.
5. Wejchert K., Elementy kompozycji urbanistycznej, Arkady, Warszawa 1974.
6. Żórawski J., O budowie formy architektonicznej, Arkady, Warszawa 1962.

Breakdown of average student's workload

	Hours	ECTS
Total workload	175	7,00
Classes requiring direct contact with the teacher	90	3,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	85	3,50