



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Architectural Design of Service Facilities [S1Arch1E>PAOU]

Course

Field of study
Architecture

Year/Semester
2/4

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-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

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Lecturers

Prerequisites

Prerequisites • Ability to perceive external conditions and to analyse a complex architectural/engineering problem in its socio-economic, geopolitical and historical background. Awareness of the need to continuously update knowledge and improve skills. • Ability to sketch /use technical drawing, necessary for the creation and development of architectural concepts and technical documentation.0

Course objective

The aim of the course is to provide essential knowledge of the universal design of service facilities, as well as to present methods of solving typical problems in this field, including: • methods of analysis and information acquisition in architectural design of service facilities, • methods of design synthesis of the obtained information, • methods of programming, conceptualization, and implementation of a service facility (in accordance with the acquired knowledge of construction technology). The practical objective of the course is to apply the acquired knowledge in the student's design of a public-use building in a given urban context, and in terms of architectural and construction design: • learning the forms and scopes of the various phases of the design process in the context of the Building Law. • the ability to apply the principles learned in respect of the construction design of a service building in their own work, • perfecting the ability to prepare schedules of particular elements of a service building, with particular emphasis on those prepared by the Architect • learning about contemporary building technologies in design practice, developing knowledge of building materials

Course-related learning outcomes

Knowledge

Student knows and understands:

A.W1. architectural design for the implementation of simple tasks, in particular: simple facilities taking into account the basic needs of users, single- and multi-family housing, service facilities in residential complexes, public facilities in an open landscape or in an urban environment;

A.W3. records of local spatial development plans to the extent necessary for architectural design;

A.W4. principles of universal design, including the idea of designing spaces and buildings accessible to all users, in particular for people with disabilities, in architecture, urban planning and spatial planning, and ergonomic principles, including ergonomic parameters necessary to ensure full functionality of the designed space and facilities for all users, especially for people with disabilities

Skills

Student can:

A.U1. design an architectural object by creating and transforming space so as to give it new value - in accordance with a given program that takes into account the requirements and needs of all users;

A.U4. make a critical analysis of the conditions, including the valorization of the land development and building conditions;

A.U5. think and act creatively, using the workshop skills necessary to maintain and expand the ability to implement artistic concepts in architectural and urban design;

A.U6. integrate information obtained from various sources, formulate their interpretation and critical analysis;

A.U7. communicate using various techniques and tools in a professional environment appropriate for architectural and urban design;

A.U8. prepare architectural and construction documentation in appropriate scales in relation to the conceptual architectural design;

A.U9. implement the principles and guidelines of universal design in architecture, urban planning and spatial planning.

Social competences

Student is capable of:

A.S1. independent thinking to solve simple design problems;

A.S2. taking responsibility for shaping the natural environment and cultural landscape, including the preservation of the heritage of the region, country and Europe.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

LECTURE

The student receives a credit for the series of lectures with a grade.

Completion of the course is subject to independent problem studies on selected topics related to the content of the lecture. The condition for obtaining a credit is to submit own studies, in digital form sent by e-mail or per e-learning platform. A single study is considered completed if it consists of min. 3 drawings (sketches), and comments to drawings (min. 300 words). At the end of the study, own conclusions and expectations regarding the content of a particular lecture may included (in a concise form).

DESIGN

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.

LABORATORY CLASSES

Important project evaluation criteria:

An important evaluation criterion is to check:

An important evaluation criterion is to check:

- knowledge of technical drawing principles necessary to prepare architectural-technical documentation for a service facility
- knowledge of service facility elements, their nomenclature, principles of shaping and design,
- knowledge of modern building technologies and materials, their properties, and scope of application in service facility construction,
- knowledge of the form and scope of the Architectural And Construction Design for a service facility;
- the ability to represent the spatial form of a service facility in flat drawings (plans, sections, elevations, etc.), axonometry,
- the ability to use drafting tools and materials and the ability to apply freehand drawing techniques,
- the ability to choose the correct size of the worksheet and the correct placement of content,
- the ability to describe and dimension technical drawings using technical writing,
- the ability to fold technical drawings,
- technical correctness and energy efficiency of the adopted design solutions,
- the ability to prepare technical documentation in a legible and aesthetical manner

Formative assessment:

- The progress of design works and technical knowledge are assessed on an ongoing basis during subsequent classes in the form specified by the teacher.

- Evaluation of drawing tasks.

Summative Evaluation:

- The assessment of knowledge and skills affects the semestral grade.

- The evaluation of the completed project work.

The adopted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.

Successful completion of the module depends on the student's achievement of all learning outcomes specified in the syllabus.

Programme content

LECTURE

- Interdependencies between the design of service facilities and other areas of space shaping. Basic tasks and the role of a designer of public use buildings
- Principles of architectural design of service facilities; elementary compositional, functional, and technical issues
- Elements of the architectural design of the service facility;
- Technical infrastructure and equipment of service facilities, specific principles and technological issues

DESIGN CLASSES

- Shaping function and form in service architecture, the service facility in the context;
- Developing the ability to prepare a presentation on selected detailed issues in the design of service buildings

LABORATORY CLASSES

- Development of Architectural And Construction Design for a service facility or its part chosen according to the concept design being developed by the student during the design classes.
- The scope of the study comprises the drawing of the Land Development Design and the following drawings in the standard of Technical Design: typical section through the vertical communication and the corresponding floorplans, and elevations (also internal). Drawings shall include structural and proposed building systems solutions.
- Technical description corresponding to the requirements of the Land Development Design and Technical Design including the definition of the fire protection requirements (human risk category, fire class, and fire resistance class of the building and its elements)
- A component (build-ups) list including calculations of the required U-values
- To be carried out by the students individually, according to consultation and guidance from the tutor, hand-drawn in pencil 2H on tracing paper or CAD.

Lecture:

Formative assessment:

periodic control of learning progress, active participation in classes

Accepted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.

Percentage of grades: 0–50% - 2.0 (insufficient); 50-60% - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

Summative assessment:

a final test or (if an exam is included in the curriculum) a written exam

Accepted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.

Percentage of grades: 0–50% - 2.0 (insufficient); 50-60% - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

Tutorials:

Formative assessment:

periodic control of learning progress (tests), active participation in classes

Accepted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.

Percentage of grades: 0–50% - 2.0 (insufficient); 50-60% - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

Summative assessment:

a final test

Accepted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.

Percentage of grades: 0–50% - 2.0 (insufficient); 50-60% - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

Projects/Laboratory classes:

Formative assessment:

partial reviews, covering individual project tasks, checking the progress of the student's work, presented in the group forum, discussion

Accepted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.

Percentage of grades: 0–50% - 2.0 (insufficient); 50-60% - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

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 at the group forum or at a collective review in the presence of other tutors

Accepted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.

Percentage of grades: 0–50% - 2.0 (insufficient); 50-60% - 3.0 (sufficien

Course topics

LECTURES:

- Interdependencies between the design of service facilities and other areas of shaping space.

Basic tasks and the role of a service building designer;

- Principles of architectural design of service facilities; compositional, functional and technical issues;
- Elements of the architectural design of a service facility;
- Technical structure of service buildings, specific principles and construction technology;

PROJECT:

- Shaping function and form in service architecture, service facility in the surroundings;
- Developing skills in preparing presentations on selected, detailed issues in the field of service development design.

LABORATORY

- Development of architectural and construction documentation of a service building or its fragment indicated according to the concept developed by the student during design classes.
- The scope of the study includes a drawing of the Land Development Project and made in the standard of the Technical Design: a characteristic cross-section through vertical communication and corresponding projections, elevations and layouts taking into account construction proposals and installation solutions. • Technical description in accordance with PZT and PT requirements, including the specification of fire protection conditions (category of human hazard, fire class and fire resistance classes of buildings and fire resistance of their elements)

- Partition catalogue with calculations of required heat transfer coefficients
- Performed by students individually, according to consultations and instructions from the instructor, by hand in 2H pencil on paper to be traced in ink on tracing paper or in CAD software.

Lectures:

Formative assessment:

periodic control of progress in learning, activity during classes

Adopted grading scale: 2.0; 3.0; 3.5; 4.0; 4.5; 5.0.

Percentage of grades: 0-50% - 2.0 (insufficient); 50-60 % - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

Summary assessment:

a test or (if the program includes an exam) a written exam

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

Percentage of grades: 0-50% - 2.0 (inadequate); 50-60 % - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

Exercises:

Formative assessment:

periodic control of progress in learning (tests), activity during classes

Adopted grading scale: 2.0; 3.0; 3.5; 4.0; 4.5; 5.0.

Percentage of grades: 0-50% - 2.0 (insufficient); 50-60 % - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

Summative assessment:

semester test

Adopted grading scale: 2.0; 3.0; 3.5; 4.0; 4.5; 5.0.

Percentage of grades: 0-50% - 2.0 (inadequate); 50-60 % - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

Project/Laboratory:

Formative assessment:

partial reviews, covering individual project tasks, checking the level

of advancement of the student's work, presented in the group forum, joint discussion.

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

Percentage of grades: 0-50% - 2.0 (inadequate); 50-60 % - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

Summary assessment:

final review, covering the last project task, which is a summary of knowledge and skills acquired during the implementation of previous projects, presentation in the group forum or at a collective review in the presence of other instructors.

Accepted grading scale: 2.0; 3.0; 3.5; 4.0; 4.5; 5.0.

Percentage of grades: 0-50% - 2.0 (inadequate); 50-60 % - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

Teaching methods

Learning methods

1. Lecture with a multimedia presentation with elements of conversation
2. Design exercises are of individual consultations conducted in the student group.
3. 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.
4. Project method / case study (sample study) - discussing different ways of solving project problems
5. PUT eKursy platform (a system for supporting the teaching process and distance learning).

Bibliography

Basic:

1. Alexander Ch., Ishikawa S., Silverstein M. et al., Język wzorców. Miasta, budynki, konstrukcja, Gdańskie Wydawnictwo Psychologiczne, Gdańsk 2008.
2. Bańka A., Społeczna psychologia środowiskowa, Wydawnictwo Naukowe Scholar, Warszawa 2002
3. Bielecki Cz., Gra w miasto, Warszawa 1996
4. Fikus, M., Przestrzeń w autorskich zapisach graficznych, wyd. PP, Poznań, 1991
5. Gehl J., Życie między budynkami. Użytkowanie przestrzeni publicznych, Wydawnictwo RAM, Kraków 2009.
6. Giedion S., Przestrzeń, czas, architektura. Narodziny nowej tradycji, PWN, Warszawa 1968.
7. Hall E. T., Poza kulturą, PWN, 2001.
8. Hall E.T., Ukryty wymiar, Warszawskie Wydawnictwo Literackie MUZA SA, Warszawa 2005.
9. Pruszewicz-Sipińska E. Architektura usługowa i mieszkaniowa w programach nauczania, tom 1, Wyd. PP, Poznań, 2010
10. Wejchert K., Elementy kompozycji urbanistycznej, Arkady, Warszawa 1974.
11. Yi - Fu Tuan, Przestrzeń i miejsce, PIW, 1987
12. Zumthor P., Myślenie architekturą, Karakter, Kraków 2010.
13. Żórawski J., O budowie formy architektonicznej, 19629.
14. "Architectural Design Of Service Facilities 1" course on eKursy (PUT e-learning platform).
15. Markiewicz P., Budownictwo ogólne dla architektów, Archi-Plus, Arkady 2011;
16. Żeńczykowski W.. Budownictwo ogólne 2/1, Arkady , Warszawa
17. Żeńczykowski W.. Budownictwo ogólne 2/2, Arkady , Warszawa
18. Żeńczykowski W.. Budownictwo ogólne 3/1, Arkady , Warszawa
19. Żeńczykowski W.. Budownictwo ogólne 3/2, Arkady , Warszawa

Legislation:

1. Rozporządzenie Ministra Infrastruktury z dnia 12 kwietnia 2002r w sprawie warunków technicznych, jakim powinny odpowiadać budynki i ich usytuowanie (z późniejszymi zmianami.)
2. Rozporządzenie Ministra Rozwoju z dnia 11 września 2020 r. w sprawie szczegółowego zakresu i formy projektu budowlanego (z późniejszymi zmianami).
3. Ustawa z dnia 7 lipca 1994 r. Prawo budowlane.
4. "Building Law" course on eKursy (PUT e-learning platform) with translation of relevant legal acts.
5. PN-B-01025:2004 Rysunek budowlany Oznaczenia graficzne na rysunkach architektoniczno-budowlanych [Construction drawings - Graphical designations on architectural and construction drawings]
6. PN-B-01027:2002 Rysunek budowlany. Oznaczenia graficzne stosowane w projektach zagospodarowania działki lub terenu [Construction drawings - Graphical designations for the landscape drawing practice]
7. PN-B-01029:2000 Rysunek budowlany. Zasady wymiarowania na rysunkach techniczno-budowlanych [Construction drawings -- Principle of dimension on architectural drawings]
8. PN-B-01030:2000 Rysunek budowlany. Oznaczenia graficzne materiałów budowlanych [Building and civil engineering drawings - Graphical symbols of building materials]
9. PN-B-01040:1994 Rysunek konstrukcyjny budowlany. Zasady ogólne. [Construction drawing for building - General principles]

Additional:

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2. Jodidio P., Architecture Now!, Taschen, Kolonia, 2011
3. Neufert E., Podręcznik projektowania architektonicznego, Arkady, 1995
4. Nowa Karta Ateńska. Wizja miast XXI wieku, 2003.
5. Periodyki: czasopisma architektoniczne, urbanistyczne, zeszyty Naukowe Politechniki Poznańskiej seria Architektura i Urbanistyka, itp.
6. Renomowane pisma architektoniczne (krajowe i zagraniczne)
7. Drouet Z., Kędziński S., Znormalizowane oznaczenia na rysunkach, Wydawnictwa normalizacyjne "Alfa" 1985.
8. Edward Allen and Joseph Iano, Fundamentals of Building Construction - Materials and Methods, 5th Edition, Wiley
9. Andrea Deplazes, "Constructing Architecture: Materials, Processes, Structures", Birkhäuser Basel

Legislation:

1. PN-EN ISO 3098-1:2002 Dokumentacja techniczna wyrobu - Pismo - Część 1: Wymagania ogólne [Technical product documentation - Lettering -- Part 1: General requirements]
2. PN-EN ISO 3098-2:2002 Dokumentacja techniczna wyrobu - Pismo - Część 2: Alfabet łaciński, cyfry i znaki [Technical product documentation - Lettering - Part 2: Latin alphabet, numeral and marks]

3. PN-EN ISO 3098-3:2002 Dokumentacja techniczna wyrobu Pismo - Część 3: Alfabet grecki [Technical product documentation — Lettering — Part 3: Greek alphabet]
4. PN-EN ISO 3098-4:2002 Dokumentacja techniczna wyrobu. Pismo. Część 4: Znaki diakrytyczne i specjalne alfabety łacińskiego. [Technical product documentation — Lettering — Part 4: Diacritical and particular marks for the Latin alphabet]
5. PN-EN ISO 3098-5:2002 [Dokumentacja techniczna wyrobu - Pismo - Część 5: Pismo alfabety łacińskiego, cyfry i znaki w projektowaniu wspomaganym komputerowo (CAD) [Technical product documentation - Lettering - Part 5: CAD lettering of the Latin alphabet, numerals and marks]
6. PN-EN ISO 4157-1:2001 Rysunek budowlany Systemy oznaczeń Część 1: Budynki i części budynków [Construction drawings — Designation systems — Part 1: Buildings and parts of buildings]
7. PN-EN ISO 4157-2:2001 Rysunek budowlany Systemy oznaczeń Część 2: Nazwy i numery pomieszczeń [Construction drawings — Designation systems — Part 2: Room names and numbers]
8. PN-EN ISO 5457:2002 Dokumentacja techniczna wyrobu - Wymiary i układ arkuszy rysunkowych [Technical product documentation - Sizes and layout of drawing sheets]
9. PN-EN ISO 7519:1999 [Rysunek techniczny - Rysunki budowlane - Ogólne zasady przedstawiania na rysunkach zestawieniowych [Technical drawings - Construction drawings - General principles of presentation for general arrangement and assembly drawings]
10. PN-EN ISO 128-20:2002 Rysunek techniczny - Zasady ogólne przedstawiania- Część 20: Wymagania podstawowe dotyczące linii [Technical drawings - General principles of presentation - Part 20: Basic conventions for lines]
11. PN-EN ISO 7200:2007 Dokumentacja techniczna wyrobu- Pola danych w tabliczkach rysunkowych i nagłówkach dokumentów [Technical product documentation - Data fields in title blocks and document headers]
12. PN-N-01603:1986 Rysunek techniczny- Składanie formatów arkuszy [Technical drawings - Folding of sheets]
13. PN-EN ISO 128-1:2020 Dokumentacja techniczna wyrobu (TPD)- Zasady ogólne przedstawiania - Część 1: Wprowadzenie i wymagania podstawowe [Technical product documentation (TPD)- General principles of representation- Part 1: Introduction and fundamental requirements]
14. PN-EN ISO 128-3:2021-01 Dokumentacja techniczna wyrobu - Zasady ogólne przedstawiania - Część 3: Widoki, przekroje i kłady [Technical product documentation - General principles of representation - Part 3: Views, sections and cuts]
15. PN-EN ISO 128-21:2006 Rysunek techniczny- Zasady ogólne przedstawiania- Część 21: Linie w systemach CAD [Technical drawings - General principles of presentation - Part 21: Preparation of lines by CAD systems]
16. PN-EN ISO 128-22:2003 Rysunek techniczny - Zasady ogólne przedstawiania - Część 22: Wymagania podstawowe i zastosowanie linii wskazujących i linii odniesienia [Technical drawings - General principles of presentation - Part 22: Basic conventions and applications for leader lines and reference lines]

Breakdown of average student's workload

	Hours	ECTS
Total workload	175	7,00
Classes requiring direct contact with the teacher	105	4,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	70	3,00