COURSE DESCRIPTION CARD - SYLLABUS

Course name
Architecture Design with BIM

Course

Field of study
Sustainable Building Engineering

Year/Semester
2/III

Area of study (specialization)
-

Profile of study
general academic

Level of study
First-cycle studies

Course offered in
English

Form of study
full-time

Requirements

Number of hours

Lecture
15

Laboratory classes

Other (e.g. online)

Tutorials
30

Projects/seminars

Number of credit points

2

Lecturers

Responsible for the course/lecturer:
dr hab. inż. arch. Maciej Janowski

Responsible for the course/lecturer:

Prerequisites

- the student has basic general knowledge in the field of architecture and construction,

- the student knows the basic methods, techniques, tools and materials used in solving simple engineering tasks in the field of architecture,

- the student has basic knowledge of the fields of study related to the field of study being studied,

- the student has an ordered, theoretically founded general knowledge covering the basic issues in the field of designing residential spaces,

- the student has detailed knowledge of technical construction drawing necessary for the presentation of architectural concepts,

- the student has a basic knowledge of development trends and the most important new achievements in the field of designing the human housing environment,

- the student has the knowledge necessary to understand the social, economic and legal conditions of designing a living space for a human,

- the student is able to use the techniques of freehand drawing and Cadowski programs necessary in the design process, can present the designed solid with chiaroscuro in perspective or axonometry with the context of the place marked,

- the student is able to make a critical analysis of the way of functioning and evaluate the existing solutions, systems and processes related to the design of single-family housing

- the student is able to identify and formulate the specification of practical tasks in the field of the conceptual design of a medium-sized single-family house under development,

- the student understands the need to expand their competences, is ready to cooperate in a team,

- the student understands the need for lifelong learning, can inspire and organize the learning process of other people,

- the student is aware of 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 correctly identifies and resolves dilemmas related to the correct application of applicable legal provisions and administrative procedures,

- the student is able to think and act in an entrepreneurial, creative and innovative way in the search for means of expression in the preparation of an architectural concept and obtaining materials helpful for its implementation.

Course objective

- learning about the issues related to shaping the human housing environment of low or medium intensity,

- learning about the types of single-family residential buildings,

- learning the functional diagrams of various types of houses,

- developing the ability to carry out analyzes of a place on an urban and architectural scale,

- learning the typology of a single-family house,

- mastering the application of known functional diagrams in various configurations,

- acquiring the ability to simultaneously shape projections and the body of the building,

- developing the ability to graphically present an architectural concept (projections, sections, elevations),

- developing the skills of freehand drawing facilitating variants of solutions,

- developing the skills of building mock-ups (working and target),

- broadening the knowledge and skills of making concept drawings (plans, sections, elevations) based on construction knowledge.

Course-related learning outcomes

Knowledge

- architectural design in terms of the implementation of tasks, in particular single-family housing in an open landscape or in an urban environment,

- universal design principles, including the ideas of designing spaces and buildings accessible to all users, in particular for people with disabilities,

- ergonomic principles, including ergonomic parameters necessary to ensure full functionality of the designed space and facilities for all users, in particular for people with disabilities.

Skills

- make a critical analysis of the conditions, including the valorization of the land development and existing buildings;

- integrate information obtained from various sources, make their interpretation and critical analysis.

Social competences

- taking responsibility for shaping the environment of human habitation and protection of the 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:

The method of checking the learning outcomes - lecture: final essay in the form of a written statement on a selected issue concerning the issue of a private home. The correctness and completeness of statements on a given topic are assessed, as well as the correct application of the research apparatus. An equivalent form of credit is a multiple-choice test consisting of 10 questions in the e-moodle system.

Exercises: designing a small detached house (up to 120 m2) on a plot in Poznań, in accordance with the guidelines provided by the teacher; preparation of the site plan (scale 1: 500), the necessary plans, sections and elevations (scale 1: 100) and models (any scale)

The basis for taking the credit is obtaining a credit for the exercises within the education module.

Summative assessment:

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

Programme content

Wykład 1. Program of the lectures and introduction

Wykład 2. History of the private house

Wykład 3. Modern houses - the case studies

Wykład 4. The elements of the house

Wykład 4. House construction design

Wykład 5. House interiors

Wykład 6. Sustainable houses - case studies

Wykład 7. Summary- the transformation of the house

Teaching methods

1. Lecture with multimedia presentation with elements of conversation.

2.eLearning Moodle (a system supporting the teaching process and distance learning)

3. Design exercises and consultations on solutions proposed by the student..

Bibliography

Basic

Alexander Ch. [2008] Język wzorców. Miasta, budynki, konstrukcja, Gdańskie Wydawnictwo Psychologiczne, Gdańsk

Janowski M. [2013] Współczesna architektura domu prywatnego i jej przemiany, Wydawnictwo Politechniki Poznańskiej, Poznań

Jencks Ch. [1997] Architektura postmodernistyczna, Arkady, Warsaw

Neufert E. [2011] Podręcznik projektowania architektoniczno-budowlanego, Arkady, Warsaw

Riley T. [1999] The Un-Private House, The Museum of Modern Art, New York

Rasmussen S. E. [2015] Odczuwanie architektury, wyd. Karakter, Kraków

Additional

Architectural papers and magazines, Poznań University of Technology Scientific Journals, series Architecture and Urban Planning.

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	2,0
Classes requiring direct contact with the teacher	45	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	30	1,0

[1] delete or add other activities as appropriate