



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Universal design in civil engineering [S1Bud1>PUwB]

### Course

Field of study

Civil Engineering

Year/Semester

1/2

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

15

### Number of credit points

2,00

### Coordinators

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### Lecturers

### Prerequisites

Students know the basic aspects of construction law. Students beginning this course should have basic knowledge of engineering and CAD graphics and introduction to building design. The student should have skills in reading architectural and construction drawings.

### Course objective

Provide students with basic knowledge of the principles of universal design, corresponding to the current social, economic and labor market needs. The aim of the course is to increase the acquired competences (knowledge and skills) by introducing new forms of education, based on a human-centered approach to designing private and public space. To provide students with basic knowledge of architectural design. Enable students to develop the ability to model buildings in 3D.

### Course-related learning outcomes

Knowledge:

1. Can obtain information from literature and other appropriately selected sources.
2. The student knows how to empathize with the role of a person with limitations.
3. The student knows how to use GERT-type old age simulators.
4. The student can design a space prepared for people with limitations (the elderly, people with disabilities, parents with young children).

#### Skills:

1. Is well acquainted with the principles of technical drawing concerning the creation and reading of architectural and construction drawings and their preparation using BIM (Building Information Modeling) technology
2. Is familiar with the elements of technical conditions, as well as the basic concepts and principles of copyright protection
3. Has basic general knowledge of spatial planning, the relationship between architecture and the technical possibilities of construction
4. The student has detailed knowledge of the principles of universal design.
5. The student has a basic knowledge of the possibilities and limitations in the functioning of people with various needs, both in biological, psychological and social aspects

#### Social competences:

1. Is able to identify priorities for the implementation of his/her own and other tasks
2. Understands the need for copyright protection
3. The student sees the need to systematically deepen and expand their competences.
4. The student understands the need for teamwork in solving theoretical and practical problems.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The knowledge acquired during the lectures is verified by a colloquium during the lecture. Passing threshold: 50% of points. Practical classes - test, passing threshold -50%.

### Programme content

Universal design. Accessibility of the facility for people with disabilities. Taking into account accessibility - communication construction.

### Course topics

Architecture design theory. Building design process. Building information modeling. Engineer's tools. Protection of monuments.

Universal design. Accessibility of the facility for people with disabilities. Taking into account accessibility - communication construction.

Workshops using GERT aging simulators, which allow young people to experience and understand age-related limitations by simulating changes in the human body. During classes, students will be able to personally test various types of enabling aids for age simulation, s. People who try the above-mentioned limitations. Students dressed in the above-mentioned the simulators will explore the facilities of the Poznań University of Technology, paying particular attention to the availability of sanitary facilities, elevators, etc. They will experience first-hand the difficulties that people with various limitations may encounter, which will make it easier for them to approach the design of public buildings.

### Teaching methods

Lectures - informative lecture with a multimedia presentation. 3D modelling - demonstration and e-learning with instruction Discussion, multimedia presentation, work with source materials, work with tools for creating a bibliography.

### Bibliography

#### Basic:

1. Neufert E., Podręcznik projektowania architektoniczno-budowlanego, Arkady, 2004
2. Siewczyńska M., Modelowanie informacji o budynku od koncepcji do dokumentacji, Wydawnictwo

Politechniki Poznańskiej, Poznań 2022

3. Rozporządzenie w sprawie warunków technicznych jakim powinny odpowiadać budynki i ich usytuowanie

4. Ustawa z dnia 19 lipca 2019 r. o zapewnianiu dostępności osobom ze szczególnymi potrzebami (Dz. U. 2019 poz. 1696)

5. Rozporządzenie Ministra Infrastruktury z dnia 12 kwietnia 2002 r. w sprawie warunków technicznych, jakim powinny odpowiadać budynki i ich usytuowanie (Dz.U. z 7 czerwca 2019, poz. 1065)

6. „Włącznik projektowanie bez barier”. Kamil Kowalski, Fundacja Integracja. Warszawa, wydanie 11.2017. Dostęp online:

<http://www.integracja.org/wp-content/uploads/2017/12/W%C5%82%C4%85cznik-projektowanie-bez-barier.pdf>

7. „Standardy dostępności budynków dla osób z niepełnosprawnościami” - uwzględniając koncepcję uniwersalnego projektowania – poradnik. Wydany przez Ministerstwo Infrastruktury i Budownictwa, jako kodeks dobrych praktyk. 4 / 4 Warszawa, 04.2018.

Additional:

1. Markiewicz P., Kształtowanie architektury poprzez zmianę rozwiązań budowlanych, Archi-Plus, 2006

2. Markiewicz P., Projekt jednego domu w pięciu technologiach : vademecum projektanta, Archi-Plus, 2002

3. Żórawski J., O budowie formy architektonicznej: skrócone ujęcie opracowanie przez Bohdana Lisowskiego, Wyd. Politechniki Krakowskiej, 2017

4. Standardy dostępności przyjęte przez JST w Polsce (np. Gdynia, Warszawa, Łódź, Wrocław), np.: „Standardy dostępności dla miasta stołecznego Warszawy, Warszawa, 23.10.2017. Dostęp online: [https://polskabezbarier.org/documents/standardy\\_dostepnosci\\_warszawa.pdf](https://polskabezbarier.org/documents/standardy_dostepnosci_warszawa.pdf)

5. „Standardy dostępności dla polityki spójności 2014 - 2020”. Załącznik nr 2 Standardy dostępności dla polityki spójności 2014-2020 dotyczące takich obszarów jak: cyfryzacja, transport, architektura, edukacja, szkolenia, informacja i promocja wydany przez Ministerstwo Inwestycji i Rozwoju. Warszawa, 11.04.2018. Dostęp online:

<https://www.poir.gov.pl/media/56123/>

Zalacznik\_nr\_2\_do\_Wytycznych\_w\_zakresie\_rownosci\_szans\_i\_niedyskryminacji.pdf

### Breakdown of average student's workload

|                                                                                                                                         | Hours | ECTS |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------|------|
| Total workload                                                                                                                          | 60    | 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) | 30    | 1,00 |