



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 (e.g. online)

0

Tutorials

0

Projects/seminars

15

Number of credit points

2,00

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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

Architectural design theory. Determinants of shaping the form, function and structure of a building. Aesthetics of public space. Building design process. Participants of the design process. The influence of installation and finishing elements and the role of lighting and colour in interiors. Universal design. Accessibility of the facility for people with disabilities. Taking into account accessibility - communication construction.

Development of a building plot. 3D modelling of a single-family building

Workshops with the use of GERT-type old age simulators, which allow young people to survive and understand age-related limitations by simulating changes in the human body. During the course, students will be able to personally test various types of aids allowing for age simulation, simulation of hemiparesis, simulation of back pain, spine defect simulation, simulation of dyspnea in chronic obstructive pulmonary disease (COPD), simulations of hearing loss and tinnitus, simulations of visual impairment, simulations hand tremors, unsteady gait simulations, knee mobility restriction simulations,

knee pain simulations. People who try the above-mentioned simulators will be able to feel the difficulties faced by people with limitations. Students dressed in the above-mentioned simulators will explore the facilities of the Poznań University of Technology, paying particular attention to the availability of sanitary facilities, lifts, etc.

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. Żórawski J., O budowie formy architektonicznej: skrócone ujęcie opracowanie przez Bohdana Lisowskiego, Wyd. Politechniki Krakowskiej, 2017
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. 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
4. „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