COURSE DESCRIPTION CARD - SYLLABUS

Course name
Fundamentals of civil engineering [S1Arch1E>PB]

Course

Field of study
Architecture

Year/Semester
1/1

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
15

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

1,00

Coordinators

Lecturers

Prerequisites

Student should have basic knowledge of the basics of civil engineering, basic technologies and materials used in construction (civil engineering and materials); 2 Student knows the basic methods, techniques, tools and materials used in the development of simple tasks in the field of free-hand technical drawing; Student is able to obtain information from literature, databases and other properly selected sources, including the English language. They are able to integrate information, interpret it and draw conclusions as well as formulate and justify opinions. to draw conclusions and to formulate and justify opinions; Student has self-education skills; Student is able to use hand drawing techniques appropriate to the realisation of technical drawings; Student understands the need for lifelong learning; can inspire and organize process of learning other people; Student can think and act in an entrepreneurial, creative and innovative manner; Student is able to think and act analytically;

Course objective

The objective of this course is to provide students with essential information about fundamentals of civil engineering in an architectural design. Key components of the course include: 1. Introduction to fundamental tools and techniques used in architectural design. 2. Understanding the context of architectural design as a synergy of knowledge, artistic principles in construction, and relevant legislation. 3. Basic information about codes that govern architectural design. 4. Fundamentals of analyzing geoinformation data and standards for drafting site plans. 5. Guidelines for drafting technical drawings, including the proper usage of normative signs and symbols. 6. Rules for dimensioning elements on technical drawings. 7. Overview of standards for conducting architectural practice. 8. Principles of professional etiquette (Savoir-vivre) and effective interpersonal communication in a professional setting.

Course-related learning outcomes

Knowledge:
Student knows and understands:
B.W4. mathematics, space geometry, statics, material strength, shaping, construction and dimensioning of structures, to the extent necessary to formulate and solve tasks in the field of architectural and urban design;
B.W5. issues of construction, construction technologies and installations, construction and building physics, covering key issues in architectural, urban and planning design as well as issues related to fire protection of buildings;
B.W7. ways of communicating the idea of architectural, urban and planning projects and their development;
B.W9. principles of occupational health and safety.

Skills:
Student can:
B.U4. develop solutions for individual building systems and elements in terms of technology, construction and materials;
B.U6. properly apply standards and legal regulations in the field of architectural and urban design.

Social competences:
Student is capable of:
B.S1. formulating opinions on the achievements of architecture and town planning, their determinants and other aspects of the architect's activity, as well as providing information and opinions;
B.S2. reliable self-assessment, formulating constructive criticism regarding architectural and urban planning activities.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The lecture series in Fundamentals of civil engineering ends with a credit colloquium.
1. The lecture series is completed by a colloquium on the PUT eKursy platform after logging in through individual student accounts.
2. The assessment colloquium consists of two parts - a drawing task and a multiple-choice test.

Formative assessment: -
Summative assessment: Assessment obtained during the credit colloquium.
Adopted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0

Programme content

The lectures will cover topics such as:
- Introduction;
- Planning work & resources;
- Working with maps & creating site plans;
- Architectural drawings - typolgy & genreral rules;
- Signs & symbols on architectural drawings;
- Dimmensions on architectural drawings;
- Ethics & interpersonal communication in professional life.

Course topics

1. Introduction
This lecture introduces the topic of general construction for architects. It presents the concept of design as a collaborative effort between architects and trade designers. The lecture also explains design documentation as a means of facilitating communication between the designer, users, contractors, and officials.
2.Design planning
Basic ways of planning the design process and time management are presented. The lecture introduces the tools used in architectural design.
3.Site development
The lecture introduces the principles of reading information from geodetic resources and their application to the analysis of the surroundings and the study area. The principles of site development design are discussed.
4. Architectural and Construction Drawing
This lecture explores the topics related to architectural and construction drawings in detail. It covers the various types of graphic presentations for building objects across different perspectives. Key principles for coherent presentation and description of individual construction elements are discussed, focusing on projections, sections, elevations, layouts, expansions, detail drawings, and lists.
5. Symbols on Architectural and Construction Drawings
This lecture covers the normative symbols and graphic notations commonly used in architectural drawings.
6. Anntotaion and Dimensioning*
This section introduces the principles of annotating and dimensioning elements in architectural and construction drawings.
7. Interpersonal Communication in Professional Life
This lecture discusses the principles of etiquette and interpersonal communication within a professional context. It addresses key issues related to the ethics of the architectural profession, including respect for copyright. Standards for practicing in the profession of public trust, as well as fundamental information about the professional self-governance of designers, are also presented.
8. The Colloquium: Semester Assessment
This section concludes the course with a colloquium to assess student understanding and provide credit for the semester.

Teaching methods

1. Lectures.
2. Lecture with multimedia presentation
3. Lecture with slideshows of photos from construction projects,
4. eLearning Moodle (a system for supporting the teaching process and distance learning)

Bibliography

Basic
1. Praca zbiorowa, Poradnik majstra budowlanego, Arkady 1992.
2. Course on PUT eLearnig platorm eKurs "Fundamentals of civil engineering"

Legislation:
1. Building Law Act of 7 July 1994.
2. Regulation of The Minister of Infrastructure Of 12 April 2002 On Technical Conditions, Which Should Correspond To The Buildings And Their Location.
3. Minister of Economic Development and Technology, Construction and the Maritime Economy concerning the scope and form of construction plans.

Codes:
1. PN-B-01025:2004 Construction drawings - Graphical designations on architectural and construction drawings
2. PN-B-01027:2002 Graphical designations for the landscape drawing practice
3. PN-B-01029:2000 Construction drawings -- Principle of dimension on architectural drawings
4.PN-B-01030:2000 Building and civil engineering drawings - Graphical symbols of building materials
5. PN-B-01040:1994 Construction drawing for building - General principles
6. PN-N-01603:1986 Technical drawings - Folding of sheets

7. PN-N-01614:1982 Technical drawings - Dimensioning - General principles 5
8. PN-ISO 1803:2001 Building construction - Tolerances - Expression of dimensional accuracy - Principles and terminology
9. PN-ISO 3880-1:1999 Building construction - Stairs - Vocabulary
10. PN-ISO 6707-1:2008 Building and civil engineering - Vocabulary - Part 1: General terms
11. PN-ISO 6707-2:2000 Building and civil engineering - Vocabulary - Part 2: Contract terms
12. PN-ISO 7518:2011 Technical drawings - Construction drawings - Simplified representation of demolition and rebuilding
13. PN-ISO 9229:2005 Thermal insulation — Vocabulary.
14. PN-ISO 9699:2003 Performance standards in building - Checklist for briefing - Contents of brief for building design
15. PN-ISO 9836:2015 Performance standards in building - Definition and calculation of area and space indicators
16. PN-EN ISO 128-1:2020 Technical product documentation (TPD)- General principles of representationPart 1: Introduction and fundamental requirements 17. PN-EN ISO 128-3:2021-01 Technical product documentation - General principles of representation - Part 3: Views, sections and cuts
18. PN-EN ISO 128-20:2002 Technical drawings - General principles of presentation - Part 20: Basic conventions for lines
19. PN-EN ISO 128-21:2006 Technical drawings - General principles of presentation - Part 21: Preparation of lines by CAD systems
20. PN-EN ISO 128-22:2003 Technical drawings - General principles of presentation - Part 22: Basic conventions and applications for leader lines and reference lines
21. PN-EN ISO 5455:1998 Technical drawings - Scales
22. PN-EN ISO 3098-1:2002 Technical product documentation -- Lettering -- Part 1: General requirements
23. PN-EN ISO 3098-2:2002 Technical product documentation - Lettering - Part 2: Latin alphabet, numberal and marks
24. PN-EN ISO 3098-5:2002 Technical product documentation - Lettering - Part 5: CAD lettering of the Latin alphabet, numerals and marks
25. PN-EN ISO 4157-1:2001 Construction drawings — Designation systems — Part 1: Buildings and parts of buildings 6
26. PN-EN ISO 4157-2:2001 Construction drawings — Designation systems — Part 2: Room names and numbers
27. PN-EN ISO 4157-3:2001 Construction drawings — Designation systems — Part 3: Room identifiers
28. PN-EN ISO 5457:2002 Technical product documentation - Sizes and layout of drawing sheets
29.PN-EN ISO 5456-1:2002 Technical drawings - Projection methods - Part 1: Synopsis
30. PN-EN ISO 5456-2:2002 Technical drawings - Projection methods - Part 2: Orthographic representations
31. PN-EN ISO 5456-3:2002 Technical drawings - Projection methods - Part 3: Axonometric representations
32. PN-EN ISO 7200:2007 Technical product documentation - Data fields in title blocks and document headers
33. PN-EN ISO 7345:1998 Thermal performance of buildings and building components — Physical quantities and definitions
34. PN-EN ISO 7519:1999 Construction drawings - General principles of presentation for general arrangement and assembly drawings
35. PN-EN ISO 8560:2019 Technical drawings- Construction drawings - Representation of modular sizes, lines and grids
36. PN-EN ISO 11091:2001 Construction drawings — Landscape drawing practice

Additional
1. Markiewicz Przemysław, Budownictwo ogólne dla architektów, Archi-Plus, Warszawa 2018
2. Scientific papers: eg. Zeszyty Naukowe Politechniki Poznańskiej.
3. Polish magazines: Architektura Murator, Architektura&Biznes, Zawód Architekt
4. Foreign magazines: Detail

Recommended for classes in the english language:
1. Littleield D. "Metric Handbook: Planning and Design Data", 4th Edition, Routledge 2012
3. Allen E. & Joseph Iano J., Fundamentals of Building Construction - Materials and Methods, 5th Edition, Wiley
3. Deplazes A. (ed.), Constructing Architecture: Materials, Processes, Structures. A Handbook, Birkhäuser

Basel 2021
4. Markiewicz P., Building Construction For Architects, Archiplus 2014
5. Watts A., Modern Construction Handbook, 6th edition, Birkhäuser 2022

Breakdown of average student's workload

	Hours	ECTS
Total workload	25	1,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	10	0,50