



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Civil Engineering 2 [S1Arch1>BO2]

### Course

Field of study

Architecture

Year/Semester

2/3

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

0

### Number of credit points

1,00

### Coordinators

### Lecturers

### Prerequisites

The student has a basic knowledge of general construction, material science, physics and mathematics useful for developing simple technical drawings in the field of architectural and construction inventory; The student has basic knowledge of technical drawing and general construction related to the architectural object; The student has well-ordered, theoretically grounded general knowledge covering the key issues in the field of general construction and materials science; The student has basic knowledge of development trends in the field of general construction and materials science; The student knows the basic methods, techniques, tools and materials used in the development of simple tasks in the field of free-hand technical drawing, general construction and material science; Student knows and understands the general principles of copyright law; The 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; Students will be able to communicate using concepts related to general construction and material science in a professional environment of architects; Students will be able to prepare and present technical drawings in English; Students can identify directions for further learning and implement the process of self-education; The student is able to use hand drawing techniques appropriate to the realisation of technical drawings; Students can perform measurements of existing buildings and rooms, interpret and record their results; The student is able to use analytical methods to design elements of a simple civil structure (e.g. estimate the overall dimensions of the structure, calculate thermal insulation of partitions). Students understand the need for lifelong learning, they are able to inspire and organize the learning process of

others. The student is able to adequately determine priorities for the realization of a project task specified by the instructor. Students are able to identify and solve dilemmas related to the creation of technical documentation of a simple construction object. The student is able to think and act analytically.

### Course objective

- provide knowledge about the conditions and possibilities of using particular building finishes; - presentation and demonstration of the advantages of designing in the 'building module'; presentation of types of types of woodwork; - presentation of the types and scope of installations occurring and the building elements they effect; - getting acquainted with not very popular part of designing which is interdisciplinary coordination; - presentation of basic legal acts related to designing and construction works; - familiarize with the legal provisions that must be met in the design process so that project complies with applicable regulations; - to raise awareness of professional responsibility at the stage of design, execution, as well as property management.

### 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:

Formative assessment:

- evaluation from the colloquiums

Summative Evaluation:

- evaluation obtained during the written colloquium

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.

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).

## Programme content

The following topics will be discussed during the lectures:

- Building finishing elements.
- Introduction to building physics.
- Typification in construction.
- Building installations and inter-branch coordination.
- Building and construction layouts and solutions in public buildings and residential buildings.
- Building maintenance, building disasters and failures.

## Course topics

Lecture #1: Building finishing elements. Discussion of construction elements of finishing buildings: plaster, wall cladding, paint coatings and floors with particular emphasis on the advantages and disadvantages, and the possibility of using particular solutions.

Lecture #2: Introduction to building physics. A discussion of the basic principles of building physics related to heat transfer through the building partitions.

Lecture #3: Typification in construction. Discuss elements of typification in construction including dimensional typification. Presentation of the main advantages of typification with particular emphasis on the aspect of investment time and cost. Discussion of the basic types of window and door joinery - advantages and disadvantages of various solutions.

Lecture #4: Building installations and inter-branch coordination. Installations in residential, multi-family, public buildings. Types of installations occurring, building requirements that determine the possibility of running them, the need for their use and their impact on the architectural and structural design process. Discussion of the methodology of carrying out and tasks of inter-branch coordination on the basis of completed realized objects. Outline the difficulties associated with coordination especially in public buildings and industrial buildings.

Lecture #5: Building and construction layouts and solutions in public buildings and residential buildings. Discuss construction solutions in frame and wall systems depending on building type, determination of initial dimensions of building elements.

Lecture #6: Building maintenance, building disasters and failures. Causes of irregularities occurring in buildings: design, performance, operation, ecological. Discussion of the most important causes of failure as well as building disasters.

Lecture #7: Credit Colloquium. Credit for the semester.

## Teaching methods

- Lectures,
- Lecture with multimedia presentation,
- Lecture with slideshows of photos of construction projects,
- PUT eKursy platform (a system for supporting the teaching process and distance learning).

## Bibliography

Basic

1. Markiewicz P., Budownictwo ogólne dla architektów, Archi-Plus, Arkady 2011;
2. Żeńczykowski W.. Budownictwo ogólne 2/1, Arkady , Warszawa
3. Żeńczykowski W.. Budownictwo ogólne 2/2, Arkady , Warszawa
4. Żeńczykowski W.. Budownictwo ogólne 3/1, Arkady , Warszawa
5. Żeńczykowski W.. Budownictwo ogólne 3/2, Arkady , Warszawa
6. "Civil Engineering 2" course on eKursy (PUT e-learning platform).

Legislation:

1. ROZPORZĄDZENIE MINISTRA INFRASTRUKTURY z dn. 12 kwietnia 2002 r. w sprawie warunków technicznych, jakim powinny odpowiadać budynki i ich usytuowanie (Dz.U.Nr75,poz.690 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. "Building Law" course on eKursy (PUT e-learning platform) with translation of relevant legal acts.

#### Additional

1. David Littlefield "Metric Handbook: Planning and Design Data", 4th Edition, 2012 Routledge
2. Ernst and Peter Neufert, Architects' Data, 3rd Edition (or later), Blackwell Science
3. Edward Allen and Joseph Iano, Fundamentals of Building Construction - Materials and Methods, 5th Edition, Wiley
4. Andrea Deplazes, "Constructing Architecture: Materials, Processes, Structures", Birkhäuser Basel

#### 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