



COURSE DESCRIPTION CARD - SYLLABUS

Course name

PO: Building engineering III

Course

Field of study

Civil engineering

Area of study (specialization)

-

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

4/7

Profile of study

general academic

Course offered in

Polish

Requirements

elective

Number of hours

Lecture

30

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

30

Number of credit points

6

Lecturers

Responsible for the course/lecturer:

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Responsible for the course/lecturer:

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Prerequisites

Knowledge, skills and competences acquired during the education process.



The ability to formulate and solve technical problems in the field of civil engineering.

Course objective

To acquaint students with the current problems of building engineering in the design and implementation and construction of buildings.

Course-related learning outcomes

Knowledge

1. The student has the knowledge of material strength, modelling and constructing; has knowledge of theoretical principles of the finite element method as well as general rules of calculations of engineering structures.
2. The student knows in detail the rules of design, construction and operation of selected building units.
3. The student has knowledge of the issues of planning and carrying out renovation and modernization of buildings.

Skills

1. The student is able to correctly define a computational model and carry out an analysis of complex building elements, is able to apply basic nonlinear computational techniques together with a critical evaluation of numerical analysis results.
2. The student is able to dimension construction details of selected elements of building structures.
3. The student is able to assess the technical condition of the building, make an inventory of rooms, select material solutions, and prepare a book of the quantity survey.

Social competences

1. The student is ready to autonomously complete and broaden (extend) knowledge in the field of modern processes and technologies of building engineering.
2. The student can realise that it is necessary to improve professional and personal competence; is ready to critically evaluate the knowledge and received content.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Passing the lectures on the basis of a positive grade (minimum 3.0) of the final written test. The condition for passing the design exercises is correct and timely execution of the design task and positive defense of the design.

Programme content

Lectures



1. Timber roof structures
2. Renovation and modernization of buildings, part I
3. Ceilings and flat roofs
4. Renovation and modernization of buildings, part II
5. Masonry structures
6. Renovation and modernization of buildings, part III
7. Foundations
8. Renovation and modernization of buildings, part IV
9. Stair constructions
10. Renovation and modernization of buildings, part V
11. Selected aspects of designing building structures
12. Failures of building structures
13. Ways to repair
14. Examples of repair solutions for structural elements
15. Final test

Projects - group 1 and 5

1. Introductory information, determining the scope of the project.
2. Inventory of the room / rooms
3. Photographic documentation
4. Assessment of the technical condition of the part of the building in which the room (s) in question is located
5. Technical description of the investment along with the selection of material solutions
6. Book of the quantity survey
7. Technical drawings of the existing and designed condition
8. Defense and project evaluation

Projects - group 2,3 and 4

1. Introductory information, determining the range of the project



2. Static calculations and drawings of the timber roof structure
3. Static calculations and drawings of the ceiling structure
4. Static calculations and drawings of the masonry structure, columns, beams, lintels
5. Static calculations and drawings of the stair structure
6. Architectural and construction details
7. Defense and project evaluation

Teaching methods

Lectures: informative, problem lecture, case study method

Projects: project method

Bibliography

Basic

1. Przemysław Markiewicz, Budownictwo ogólne dla architektów, ARCHI-PLUS, Kraków 2011
2. Poradnik majstra budowlanego, ARKADY.
3. Wacław Żenczykowski, Budownictwo ogólne tom 2/1.
4. Rozporządzenie w sprawie warunków technicznych, jakim powinny odpowiadać budynki i ich usytuowanie.
5. Ustawa Prawo budowlane.

Additional

1. Manufacturers' technical materials for the design and assembly of building elements
2. Technical sheets of building materials.

Breakdown of average student's workload

	Hours	ECTS
Total workload	120	6,0
Classes requiring direct contact with the teacher	60	3,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	60	3,0

¹ delete or add other activities as appropriate