

SYLLABUS

Name: **Buildings and Physics of Buildings (BudAB>SI3BUPHBU19)**

Name in Polish:

Name in English: **Buildings and Physics of Buildings**

Information on course:

Course offered by department: Faculty of Civil Engineering
Course for department: Silesian University of Technology
Term: Winter semester 2025/2026
Coordinator of course edition: Dr hab. inż. Jerzy Bochen

Default type of course examination report:

ZAL

Language:

English

Course homepage:

<https://platforma.polsl.pl/rb/>

Short description:

The subject concerns the principles of designing buildings with traditional technology, their main structural elements, taking into account appropriate insulation in the light of applicable regulations and standards. The aim of the course is to familiarize with the basic concepts and principles in the field of technical solutions and designing basic structural elements and more important finishing elements of buildings, in particular insulations. Knowledge in the field of the subject is delivered at the lecture. The application of knowledge and the acquisition of practical skills are used in design exercises, which are carried out by the blackboard exercises providing design guidelines and making the project. Project is about of selected building elements of four-storey apartment building.

Description:

Semester 3:

LECTURES 30 hours:

- 1) Basic definitions, general inf. about designing, building regulations, constr. system, build. elements, technical drawing.
- 2) External and internal walls: main requirements, constr. types, materials, partitions, chimney walls.
- 3) Stairs: types and construction principles.
- 4) Floors: timber, beam and block floors, others.
- 5) Floor finishes: floors with thermal and acoustic insulation.
- 6) Timber pitched roofs: construction types, insulations and vent., chimneys.
- 7) Foundations: soil types, properties and phenomena, types of foundations, cases of found.
- 8) Waterproofings: types, principles, drainage.

CLASSES 5 hours and PROJECT 25 hours

- 1) Guidelines about making of drawings: plan of intermediate storey, cross section, staircase elements, timber roof structure and technical description.
- 2) Project of selected building elements of four-storey apartment building. Preparing drawings and technical description in accordance to the guidelines.

Bibliography:

Foreign literature:

- [1] Emmitt S., Gorse C.: Barry's Introduction to Construction of Buildings. 4th edition, Oxford: Blakwell Publishing, 2007,
- [2] Chudley R., Greeno R.: Building construction handbook. Incorporating current building & construction regulations. 6th edition Burlington: Elsevier Butterworth – Heinemann, 2006.

Polish literature:

- [3] Moj E., Śliwiński M.: „Podstawy Budownictwa, Cz.1, Skrypt dla studentów wyższych szkół technicznych”. Kraków: Wydawnictwo Politechniki Krakowskiej, 1997.
- [4] Byrdy C., Kram D., Korepta K., Śliwiński M.: „Podstawy Budownictwa, Cz.2, Skrypt dla studentów wyższych szkół technicznych”. Kraków: Wyd. Politechniki Krakowskiej, 1997.
- [5] Klemm P. : „Budownictwo ogólne. Tom 2, Fizyka budowli”. Warszawa: Arkady, 2005.
- [6] Lichołaj L. : „Budownictwo ogólne. Tom 3. Elementy budynków podstawy projektowania ”. Warszawa: Arkady, 2008.
- [7] Buczkowski W. : Budownictwo ogólne. Konstrukcje budynków, Tom 4, Warszawa: Arkady, 2009.
- [8] Schabowicz K., Gorzelańczyk T.: „Materiały do ćwiczeń z budownictwa ogólnego”. Wrocław: Dolnośląskie Wydawnictwo Edukacyjne, 2009.

Learning outcomes:

Semester 3:

KNOWLEDGE

- (1) Knows standards for construction designing and basic regulations in area of the technical requirements, [directional effect K1A_W01].
- (2) Knows rules for designing of basic building's construction elements with regard to foundations and insulations, [directional effect K1A_W01].

SKILLS

- (3) Can design basic building's construction elements with regard to appropriate insulations, [directional effect K1A_U08].
- (4) Can make technical drawings such as: plans, cross sections and details, [directional effect K1A_U01].
- (5) Can make a decision on choosing of building materials for different elements in buildings with regard of their function, affecting the durability of building components [directional effect K1A_U05].

Assessment methods and assessment criteria:

REQUIREMENTS FOR PASSING THE COURSE

ENTRANCE REQUIREMENTS: Basic knowledge about building materials.

- 1) Passing the classes and project on the base of presence during classes and consultations, verifications and defence completed

USOSweb: Szczegóły przedmiotu: BudAB>SI3BUPHBU19, w cyklu: 2025/2026-Z, jednostka dawcy: <brak>, grupa przedm.: <brak>

drawings in terms pointed by the tutor, and getting all positive grades.

- Attending the classes and project is obligatory.
 - Agreement with design principles, standards and regulations and graphical quality of drawings are taken into consideration.
 - Retake of drawings with errors or not delivered in appropriate terms is possible during consultations determined by the teacher.
- 2) Passing the project on the base of positive grade of each element. Mark of the project is average of all partial marks.
- 3) Passing the lectures and classes on the base a positive valuation of the final written test.
- 50% of maximum grade is required to get a positive valuation of the test.
 - The written test is possible twice,

FINAL MARK

60% (project) + 40% (test)

To have partial grades transferred, students should contact the teacher within the first two weeks of the semester.

The syllabus is valid from the winter semester of the 2025/2026 academic year, and its content is not subject to change during the semester.

Information on course edition:

Default type of course examination report:

EGZ

Homepage of course edition:

<https://platforma.polsl.pl/rb/>

Short description:

The subject concerns the principles of designing buildings with traditional technology, their main structural elements, taking into account appropriate insulation in the light of applicable regulations and standards.

The aim of the course is to familiarize with the basic concepts and principles in the field of technical solutions and designing basic structural elements and more important finishing elements of buildings, in particular insulations.

Knowledge in the field of the subject is delivered at the lecture. The application of knowledge and the acquisition of practical skills are used in design exercises, which are carried out by the blackboard exercises providing design guidelines and making the project.

Project is about of selected building elements of four-storey apartment building.

Description:

Semester 3:

LECTURES 30 hours

- 1) Basic definitions, general inf. about designing, building regulations, constr. system, build. elements, technical drawing.
- 2) External and internal walls: main requirements, constr. types, materials, partitions, chimney walls.
- 3) Stairs: types and construction principles.
- 4) Floors: timber, beam and block floors, others.
- 5) Floor finishes: floors with thermal and acoustic insulation.
- 6) Timber pitched roofs: construction types, insulations and vent., chimneys.
- 7) Foundations: soil types, properties and phenomena, types of foundations, cases of found.
- 8) Waterproofings: types, principles, drainage.

CLASSES 5 hours, and PROJECT 25 hours

- 1) Guidelines about making of drawings: plan of intermediate storey, cross section, staircase elements, beam and block floor and technical description.
- 2) Project of selected building elements of four-storey apartment building. Preparing drawings and technical description in accordance to the guidelines.

Notes:

Subjects delivered in stationary way with help the Teaching Platform.

Details of classes and study groups

lecture (30 hours)

The classes homepage

<https://platforma.polsl.pl/rb/>

Bibliography:

Foreign literature:

- [1] Emmitt S., Gorse C.: Barry's Introduction to Construction of Buildings. 4th edition, Oxford: Blakwell Publishing, 2007,
- [2] Chudley R., Greeno R.: Building construction handbook. Incorporating current building & construction regulations. 6th edition Burlington: Elsevier Butterworth – Heinemann, 2006.

Polish literature:

- [3] Moj E., Śliwiński M.: „Podstawy Budownictwa, Cz.1, Skrypt dla studentów wyższych szkół technicznych”. Kraków: Wydawnictwo Politechniki Krakowskiej, 1997.
- [4] Byrdy C., Kram D., Korepta K., Śliwiński M.: „Podstawy Budownictwa, Cz.2, Skrypt dla studentów wyższych szkół technicznych”. Kraków: Wyd. Politechniki Krakowskiej, 1997.
- [5] Klemm P. : „Budownictwo ogólne. Tom 2, Fizyka budowli”. Warszawa: Arkady, 2005.
- [6] Lichołaj L. : „Budownictwo ogólne. Tom 3. Elementy budynków podstawy projektowania ”. Warszawa: Arkady, 2008.
- [7] Buczkowski W. : Budownictwo ogólne. Konstrukcje budynków, Tom 4, Warszawa: Arkady, 2009.
- [8] Schabowicz K., Gorzelańczyk T.: „Materiały do ćwiczeń z budownictwa ogólnego”. Wrocław: Dolnośląskie Wydawnictwo Edukacyjne, 2009.

Learning outcomes:

Semester 3:

KNOWLEDGE

- (1) Knows standards for construction designing and basic regulations in area of the technical requirements, (directional effect K1A_W01).
- (2) Knows rules for designing of basic building's construction elements with regard to foundations and insulations, (directional effect K1A_W01).

Assessment methods and assessment criteria:**REQUIREMENTS FOR PASSING THE LECTURES**

ENTRANCE REQUIREMENTS: Basic knowledge about building materials.

1) Learning effects of lectures are revised by colloquium together with learning effects of the classes.

Minimum level to pass is 50% of total number of points to get.

The retake Colloquium is possible twice.

To have partial grades transferred, students should contact the teacher within the first two weeks of the semester.

The syllabus is valid from the winter semester of the 2025/2026 academic year, and its content is not subject to change during the semester.

Classes topics:

Semester 3:

1) Basic definitions, general inf. about designing, building regulations, constr. system, build. elements, technical drawing.

2) External and internal walls: main requirements, constr. types, materials, partitions, chimney walls.

3) Stairs: types and construction principles.

4) Floors: timber, beam and block floors, others.

5) Floor finishes: floors with thermal and acoustic insulation.

6) Timber pitched roofs: construction types, insulations and vent., chimneys.

7) Foundations: soil types, properties and phenomena, types of foundations, cases of found.

8) Waterproofings: types, principles, drainage.

Teaching methods:

Method of delivering in contact way.

Study groups details

Group number 1

Class instructors:

Dr hab. inż. Jerzy Bochen

classes (5 hours)

The classes homepage

<https://platforma.polsl.pl/rb/>

Bibliography:

Foreign literature:

[1] Emmitt S., Gorse C.: Barry's Introduction to Construction of Buildings. 4th edition, Oxford: Blakwell Publishing, 2007,

[2] Chudley R., Greeno R.: Building construction handbook. Incorporating current building & construction regulations.

6th edition Burlington: Elsevier Butterworth – Heinemann, 2006.

Polish literature:

[3] Moj E., Śliwiński M.: „Podstawy Budownictwa, Cz.1, Skrypt dla studentów wyższych szkół technicznych”. Kraków: Wydawnictwo Politechniki Krakowskiej, 1997.

[4] Byrdy C., Kram D., Korepta K., Śliwiński M.: „Podstawy Budownictwa, Cz.2, Skrypt dla studentów wyższych szkół technicznych”. Kraków: Wyd. Politechniki Krakowskiej, 1997.

[5] Klemm P. : „Budownictwo ogólne. Tom 2, Fizyka budowli”. Warszawa: Arkady, 2005.

[6] Lichołaj L. : „Budownictwo ogólne. Tom 3. Elementy budynków podstawy projektowania ”. Warszawa: Arkady, 2008.

[7] Buczkowski W. : Budownictwo ogólne. Konstrukcje budynków, Tom 4, Warszawa: Arkady, 2009.

[8] Schabowicz K., Gorzelańczyk T.: „Materiały do ćwiczeń z budownictwa ogólnego”. Wrocław: Dolnośląskie Wydawnictwo Edukacyjne, 2009.

Learning outcomes:

Semester 3:

KNOWLEDGE

(1) Knows standards for construction designing and basic regulations in area of the technical requirements, (directional effect K1A_W01).

(2) Knows rules for designing of basic building's construction elements with regard to foundations and insulations, (directional effect K1A_W01).

SKILLS

3) Can design basic building's construction elements with regard to appropriate insulations, (directional effect K1A_U08).

4) Can make technical drawings such as: plans, cross sections and details, (directional effect K1A_U01).

5) Can make a decision on choosing of building materials for different elements in buildings with regard of their function, (directional effect K1A_U05).

Assessment methods and assessment criteria:**REQUIREMENTS FOR PASSING THE CLASSES**

ENTRANCE REQUIREMENTS: Basic knowledge about building materials.

1) Passing the final test on the base of presence during classes, completing the project.

- Attending the classes is obligatory.

- Agreement with design principles, standards and regulations and graphical quality of drawings are taken into consideration.

2) Passing the test on the base a positive valuation of the final written test,

- 50% of maximum grade is required to get a positive valuation of the exam.

- Improving of the written test is possible twice.

To have partial grades transferred, students should contact the teacher within the first two weeks of the semester.

The syllabus is valid from the winter semester of the 2025/2026 academic year, and its content is not subject to change during the semester.

Classes topics:

Semester 3:

1) Guidelines about making of drawings: plan of intermediate storey, staircase elements, cross section, timber roof structure and technical description.

2) Project of selected building elements of four-storey apartment building. Preparing drawings and technical description in accordance to the guidelines.

Teaching methods:

Flipped Based Learning in contact way.

Study groups details

Group number 1

Class instructors:

Dr hab. inż. Jerzy Bochen

project (25 hours)

The classes homepage

<https://platforma.polsl.pl/rb/>

Bibliography:

Foreign literature:

- [1] Emmitt S., Gorse C.: Barry's Introduction to Construction of Buildings. 4th edition, Oxford: Blakwell Publishing, 2007,
[2] Chudley R., Greeno R.: Building construction handbook. Incorporating current building & construction regulations. 6th edition Burlington: Elsevier Butterworth – Heinemann, 2006.

Polish literature:

- [3] Moj E., Śliwiński M.: „Podstawy Budownictwa, Cz.1, Skrypt dla studentów wyższych szkół technicznych”. Kraków: Wydawnictwo Politechniki Krakowskiej, 1997.
[4] Byrdy C., Kram D., Korepta K., Śliwiński M.: „Podstawy Budownictwa, Cz.2, Skrypt dla studentów wyższych szkół technicznych”. Kraków: Wyd. Politechniki Krakowskiej, 1997.
[5] Klemm P. : „Budownictwo ogólne. Tom 2, Fizyka budowli”. Warszawa: Arkady, 2005.
[6] Lichołaj L. : „Budownictwo ogólne. Tom 3. Elementy budynków podstawy projektowania ”. Warszawa: Arkady, 2008.
[7] Buczkowski W. : Budownictwo ogólne. Konstrukcje budynków, Tom 4, Warszawa: Arkady, 2009.
[8] Schabowicz K., Gorzelańczyk T.: „Materiały do ćwiczeń z budownictwa ogólnego”. Wrocław: Dolnośląskie Wydawnictwo Edukacyjne, 2009.

Learning outcomes:

Semester 3:

SKILLS

- (1) Can design basic building's construction elements with regard to appropriate insulations, (directional effect K1A_U08).
(2) Can make technical drawings such as: plans, cross sections and details, (directional effect K1A_U01).
(3) Can make a decision on choosing of building materials for different elements in buildings with regard of their function, affecting the durability of building components (directional effect K1A_U05).

Assessment methods and assessment criteria:

REQUIREMENTS FOR PASSING THE PROJECT

ENTRANCE REQUIREMENTS: Basic knowledge about building materials.

- 1) Passing the project on the base of presence during classes and consultations, verifications and defence completed drawings in terms pointed by the tutor, and getting all positive grades.
• Attending the project tutorials is obligatory.
• Agreement with design principles, standards and regulations and graphical quality of drawings are taken into consideration.
• Retake of drawings with errors or not delivered in appropriate terms is possible during consultations determined by the tutor.
2) Passing the project on the base of positive grade of each element. Mark of the project is average of all partial marks.

To have partial grades transferred, students should contact the teacher within the first two weeks of the semester.

The syllabus is valid from the winter semester of the 2025/2026 academic year, and its content is not subject to change during the semester.

Classes topics:

Semester 3:

- 1) Guidelines about making of drawings: plan of intermediate storey, staircase elements, cross section, timber roof structure and technical description.
2) Project of selected building elements of four-storey apartment building. Preparing drawings and technical description in accordance to the guidelines.

Teaching methods:

Project Based Learning in contact way.

In case of a necessity of remote way the tools were applicated: Platform of remote teaching, Zoom or Ms Teams comunicator.

Study groups details

Group number 1

Class instructors:

Dr inż. Michał Marchacz

Dr hab. inż. Jerzy Bochen

Element of course groups in various terms:

Course group description	First term	Last term
missing group description in English (BudAB-S1-2019-sem3)	2020/2021-Z	

Course credits in various terms:

<without a specific program>			
Type of credits	Number	First term	Last term
European Credit Transfer System (ECTS)	4	2020/2021-Z	