1. Course number and name

RB-S1-19-W39-84, Buildings and Physics of Buildings I

2. Credits and contact hours*

4 ECTS, lectures: 30 hours**, classes: 5 hours**, project: 25 hours**

3. Instructor's or course coordinator's name

Jerzy Bochen, CEng, MSc, PhD, DSc, Assoc. Prof.

4. Text book, title, author, and year

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

a. other supplemental materials

- Building regulations: Technical requirements on building elements, design and safety.
- Graphical standards about elements signs, materials signs, dimensioning, for making technical drawings.
- Standard guidelines about: chimney walls, roof covering.
- Manufacture leaflets and cards about structural, finishing and insulating building products (e.g. typical windows, window lintels).

5. Specific course information

a. brief description of the content of the course (catalog description)

Lectures:

(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 sound proof insulation, (6) Timber pitched roofs: construction types, insulations and ventilation, chimneys, (7) Foundations: soil types, properties and phenomena, types of foundations, cases of foundations, (8) Waterproofings: types, principles, drainage.

Classes:

Discussing on elements of the Project: Draw 1 - Plan of intermediate storey, Draw 2 - Staircase elements, Draw 3 - Cross section, Draw 4 – Timber pitched roof structure conception, Technical description.

Project:

Project of selected building elements of four-storey apartment building with regard to design principles and building regulations. Preparing 4 drawings and technical description in accordance to the Classes guidelines.

b. prerequisites or co-requisites

Passing the subject: Engineering Graphics

c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program

Required, obligatory

6. Specific goals for the course

a. specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic

The student can:

- make technical drawings such as: plans, cross sections and details.
- design selected basic building's structural elements with regard to appropriate insulations (carpenter timber roof structure),
- make a decision on choosing of building materials for different elements in a building with regard of their function,
- use a knowledge about different solutions of building elements, their design principles and regulations.

b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.

K1A_U01, K1A_W01, K1A_U05, K1A_U08

7. Brief list of topics to be covered

1. Basic information: the design process; structural and finishing elements, structural system, classification and review on basic elements of buildings as: walls, stairs, floors, floor finishes, timber roofs, foundations, waterproofings.
2. Building regulations on usable spaces, stairs, chimney walls, safety of using, Design principles of studied elements.
3. General types and application principles of insulations: thermal, sound proof, water proofings, vapour control layer.
4. Graphical principles for making of technical drawings: plans, cross sections, details. Thickness of lines, signs of elements and materials, dimensioning.
5. Technical description and its content. Area and cubage parameters of a building.

*- Consultations were not included in the contact hours

**-per semester