

Tadeusz Kosciuszko Cracow University of Technology

Course Card

Faculty of Civil Engineering

Field of study: Civil Engineering

Study profile: general academic

Study form: full-time

Field of study code: BUD

Study cycle: 1st

Specialty: no specialty

1 COURSE INFORMATION

Course name	Budownictwo ogólne
Course name in English	Fundamentals of Civil Engineering
Course code	WIL BUD oIS C22 24/25
Course category	Basic
No. of ECTS points	7.00
Semester	2 and 3

2 CLASS TYPE, NUMBER OF HOURS ACCORDING TO THE STUDY PLAN

Semester	Lecture	Class exercise	Laboratory	Computer lab	Design exercise	Seminar
2	30	0	0	0	15	0
3	30	0	0	0	30	0

3 COURSE OBJECTIVES

Objective 1 Introduction to basic concepts of civil engineering, classification of buildings civil engineering structures and actions for the structural design

Objective 2 Introduction of the Polish Building Law and the standards applicable to the design and execution

Objective 3 Introduction of the principles and application rules used for various systems of structural design

Objective 4 Introduction to various systems of finishings applied in structural design

Objective 5 Knowledge of the rules and regulations for preparation of a technical documentation for designed structure

4 PREREQUISITES IN TERMS OF KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1 Descriptive geometry

2 Building materials

5 LEARNING OUTCOMES

LO1 Knowledge Student is able to describe basic structural design systems and to assess the characteristic combinations of loads and actions for the structural design

LO2 Skills Student is familiar with the basis of the Polish Building Laws and able to apply the principles and rules that are contemporarily in force

LO3 Knowledge Student has knowledge on the systems of the structural elements of a building (foundations, walls, floors, stairs, flat roofs, roofs) as well as their elements (lintels, chimneys, etc.)

LO4 Skills Student knows the elements of finishings

LO5 Skills Student is able to professionally prepare the architectural and technical documentation of a building and is able to read a technical documentation

LO6 Knowledge Student is able to cooperate in a teamwork on a design project and is able to apply the current standards and laws

6 COURSE CONTENT

Lecture		
No.	Subject matter of the course Detailed description of thematic blocks	No. of class hours
L1	General guidance for the structural design, basic notions and definitions, classification of the civil engineering works and buildings, basis of the Building Law and the other legal acts (Specification of technical conditions which should be fulfilled for buildings design and orientation - Decree by the Minister of Infrastructure), investment process, regulations for fire protection	4
L2	Structural systems - terminology, structural elements of buildings and civil engineering works	2
L3	Actions for the structural design of buildings and civil engineering works	2
L4	Regulations for specification of technical conditions which should be fulfilled for buildings design and orientation, identification and characteristics of soils, foundation types and their selection, excavation and trench timbering; hydro-protection of the foundations	6

Lecture		
No.	Subject matter of the course Detailed description of thematic blocks	No. of class hours
L5	Masonry walls - criteria for the wall type selection, single layer walls (brick, hollow blocks, cement tiles), multilayer walls	4
L6	Principles for designing of chimneys, ceramic chimney blocks, traditional systems of chimneys	2
L7	Lintel - types and principles of construction	2
L8	Timber walls - types and principles of construction	2
L9	Prefabricated systems of walls and large-size walls	2
L10	Timber floors - principles of construction for typical floors: "open floor", "open floor with a sound boarding", "simple floor" (strop szkolny)	3
L11	Rib-and-slab floors - types and principles of construction	5
L12	Monolithic floors (slab floors and joists floors), prefabricated floors	2
L13	The elements of vertical communication - stairs, ramps and lifts. The types and the principles for the design of the r.c. stairs, timber nad steel stairs	4
L14	Roofs - the types of roofs, timber construction of roofs, typical elements and sizes of the roof constructions	6
L15	Flat roofs and terraces in traditional buildings	4
L16	Large span roof structures - timber , steel and concrete structures.	2
L17	Finishing elements in building - : windows, doors, coatings, flooring, roof tiles and steel sheets	6
L18	Multistory buildings - industrial systems of construction	2

Design exercise		
No.	Subject matter of the course Detailed description of thematic blocks	No. of class hours
P1	Individual design project: planning the layout of the modular spacing of the wall axes. Dimensioning	4
P2	Individual design project: ArchiCAD - architectural design of a two-story building. 3D model and the plans of particular levels: Ground floor plan, First floor plan, Roof Plan.	12
P3	Individual design project: ArchiCAD -Staircase design. Cross sections. Model, Views and Layout specifications. Dimensioning.	4

Design exercise		
No.	Subject matter of the course Detailed description of thematic blocks	No. of class hours
P4	Individual design project: ArchiCAD - particular floor design; details: support on a ring beam; distributing ribs, additional ribs application under the partition walls, detailing of structural elements	12
P5	Individual design project: detailing of structural elements	2
P6	Individual design project: Energy performance of a building calculation - ArchiCAD	6
P7	Individual design project: Bills of materials and elements (windows and doors). Technical description of a design project	4
P8	Technical description of a design project	1

7 TEACHING TOOLS

N1 Lectures

N2 Presentations

N3 Projects

N4 Consultations

8 Student workload

Activity form	Number of hours of activity
Hours realized in contact with the teacher	
Hours resulting from the study plan	105
Consultation hours	25
Exams and tests during session	5
Hours of autonomous student work	
Preparing for classes, studying literature	30
Developing results	0
Preparing of reports, projects presentations, discussion	30
Total number of hours devoted to the subject	195
Total number of ECTS points	7.00

9 Methods of grading

Partial grades

F1 Individual
design

F2 test

Summary grade

P1 exam

Conditions for passing the course

L1 Only those students who get the "pass" grade from the Design project and all the partial Tests are allowed to take the final exam