



Studies:

Civil Engineering
Subject description card

Name of the subject				Subject code		Year / semester	
<i>Civil engineering II with elements of architectural design</i>						I	01
Subject		Profile		Level of education			
Obligatory		General academic		Full-time, first degree – S1			
Type of classes						ECTS	
Lecture	Exercises	Laboratory	Project	Seminar	Exam		
30	-	-	30	-	-	6	
Department conducting subject:	<i>Chair of Civil Engineering</i> <i>Tel: +48 (34) 325 09 65</i> <i>mail: chlad@bud.pcz.pl</i>						
Teachers conducting subject:	<i>Chair of Civil Engineering employees:</i> <i>Dr hab. Inż. arch. Mariusz Zadworny Prof. P.Cz.</i> <i>Dr inż. arch. Nina Sołkiewicz-Kos</i> <i>Dr inż. arch. Malwina Tubielewicz-Michalczuk</i>						

I. Card subject

PURPOSE OF THE SUBJECT

C01	Mastering knowledge and skills in the field of applying technical regulations, criteria for selection of structural elements in buildings.
C02	Knowledge of building technologies as well as regulations and procedures used in the design and realisation of buildings.
C03	Mastering the ability to solve structural and technical problems related to the design of buildings realised in modern technologies.

PRELIMINARY REQUIREMENTS FOR KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1	Knowledge of mathematics, physics and chemistry issues at high school level.
2	General knowledge of descriptive geometry and technical drawing.
3	Ability to use literature sources.

LEARNING EFFECTS:

Knowledge: the graduate knows and understands

EU1	Student has knowledge in the field of basic problems related to the design and realisation of buildings using modern construction technologies. He knows the currently applicable regulations and standards of the Building Law.
------------	--

Skills: the graduate can

EU2	Student is able to use the acquired knowledge in the process of designing building structures in accordance with the principles of correct selection of structural elements. He can adapt the designed objects to the applicable provisions of the Building Law. Is able to use modern sources of information necessary for solving project tasks.
------------	--

Social competence: the student is ready to

EU3	Student is properly prepared to work in a design team, to cooperate with other professional groups (architects, environmentalists, installers), is able to cooperate with a team implementing the design concept.
------------	---

II. PROGRAM CONTENT		
Type of classes - Lecture		number of hours
L1	Introduction to the subject: General construction - 2. Structural systems, design principles, structural building of facilities with various functions.	2
L2	Structural characteristics of the building. Interaction of aboveground and underground building construction elements.	2
L3	The principles of universal design. Designing of residential buildings	2
L4	The principles of universal design. Designing public buildings.	2
L5	Technological and material solutions used in construction and architecture. Panel walls; design principles, facade systems used, examples of solutions used.	2
L6	Technological and material solutions used in construction and architecture. Curtain walls; design principles, production process and assembly of system elements. Examples of applied solutions.	2
L7	Technological and material solutions used in construction and architecture. Ventilated facades and principles of their functioning. Examples of applied solutions.	2
L8	Construction technology of ceilings, floors and suspended ceilings.	2
L9	Flat roofs; types of solutions used and general principles of their functioning, systems of covering surface drainage , examples of solutions used.	2
L10	Terraces; design principles, types and examples of solutions used.	2
L11	Green roofs; ecological effects of their functioning, design principles, examples of applied solutions.	2
L12	The use of contemporary construction and material solutions in existing building structures.	2
L13	Design and integration of building and architectural structures, the impact of various construction technologies on the natural and cultural environment.	2
L14	Design and implementation of buildings using technology digital. Principles of constructing the form and the process of creating a building object.	2
L15	Directions of development of modern construction and architecture. Presentation of the latest trends and examples of the realisation of the objects.	2
TOTAL:		30
Type of classes - Project		number of hours
P1	Familiarizing students with the assumptions regarding project development. Determining the scope of analyzed issues. Determining the conditions of receiving the signatures.	2
P2	Development of a construction and technological solution for the designed building. Analysis of technologies used in the building under development.	2
P3	Analysis of rooms in the designed object.	2
P4	Analysis of building ventilation systems.	2
P5	Building water and sewage system analysis	2
P6	Analysis of facade systems used in the designed building. A proposal of material and technological solutions for the building's facade	2
P7	Project of the roofing structure - definition of basic technological solutions.	2
P8	Project of functional and spatial solutions. Ground floor plan.	2
P9	Project of functional and spatial solutions. Floor plan	2
P10	Project of the cross section of the object.	2
P11	Detail project of the ground zone and the outer wall of the building.	2
P12	Detail project of connection of the ceiling with the external wall of the building.	2

P13	Detail project of connection of the flat roof with the external wall of the building.	2
P14	Project of building drainage system – detail.	2
P15	Receiving signatures in project classes. Work presentation.	2
TOTAL:		30

TEACHING TOOLS		
1	Lecture using audiovisual means.	
2	Manuals, scripts	
3	Computer programs.	
4	Original materials and scripts.	

ASSESSMENT METHODS: (F - FORMATIVE; P - SUMMARY)		
F01	assessment of self-preparation for classes	
F02	assessment of designing of projects' elements made independently by the student	
P01	assessment of final tests	
P02	assessment of projects	

III. Student's work		
L.p.	Activity form	The average number of hours to complete the activity [hours]
1. Contact hours with the lecturer:		
1.1	Hours of classes organized by the university - lectures	30
1.2	Hours of classes organized by the university - exercises	-
1.3	Hours of classes organized by the university - laboratory	-
1.4	Hours of classes organized by the university - project	30
1.5	Consultations	10
1.6	Exam	-
Total numer of contact hours with the lecturer:		70
2. Student's work		
2.1	Preparation for classes and final test	-
2.2	Preparation for the laboratory, preparing of individual test reports	-
2.3	Preparation of own project	40
2.4	Preparation for final credit of the lecture	20
2.5	Preparation for the exam	-
2.6	Familiarization with the recommending literature	20
Total numer of student's working hours:		35
General student's work:		150

IV. BASIC AND ADDITIONAL LITERATURE		
Basic literature:		
1.	Markiewicz P., Detale projektowe nowoczesnych technologii budowlanych, Archi Plus. Kraków 2004.	
2.	Mielczarek Z.: Nowoczesne konstrukcje w budownictwie ogólnym, Arkady. Warszawa 2001.	
3.	Niedostatkiewicz M., Dachy stropodachy tarasy, Wydawnictwo: DIFIN Spółka Akcyjna, 2016. ISBN 978-83-8731-007-3	
4.	Stefańczyk B.: Budownictwo Ogólne. Materiały Budowlane i systemy budowlane, Tom I. Arkady. Warszawa 2010.	
5.	Zielonko-Jung K., Kierunki rozwoju w projektowaniu elewacji przeszklonych, Świat Szkła 12/2006.	
6.	Żenczykowski W.: Budownictwo Ogólne. Elementy i konstrukcje budowlane, Tom 2/1, 2/2. Arkady. Warszawa 1990.	

Additional literature:	
1.	Korzeniewski W.: Budownictwo mieszkaniowe. Arkady. Warszawa 1989.
2.	Radzewanowski Z.: O niektórych problemach regionalizmu i ekologii w architekturze i urbanistyce. Wydawnictwo Politechniki Krakowskiej. Kraków 2005.
3.	Dorosiński W.: Zarys metodyki projektowania. Arkady. Warszawa 1981.
4.	Charytonow E.: Projektowanie architektoniczne. WSiP. Warszawa 1974.
5.	Malcolm Millais; Building structures from concepts to design, 2005

V. FORMS OF ASSESSMENT - DETAILS	
OCENY	(EFEKTY UCZENIA) LEARNING EFFECTS
EU1	
2,0	The student has knowledge only of basic terms related to the design of building structures.
3,0	The student knows the basic concepts and terms related to the design of building structures.
4,0	The student not only possesses extensive knowledge related to issues in the field of designing building structures and materials, but also undertakes discussion.
5,0	The student also knows how to explain the interaction of individual elements of civil engineering and architecture, design and building structures.
EU2	
2,0	The student is not able to analyze the conditions of the given design problem.
3,0	Student is able to analyze the conditions of a given design problem.
4,0	The student has the ability to prepare project documentation in the field of civil engineering and architecture.
5,0	The student can also determine the possibility of using various technical solutions in the designed facility.
EU3	
2,0	The student cannot work individually.
3,0	The student is able to work individually and pose questions in the design process.
4,0	Student is able to take part in discussions in the field of civil engineering and architectural issues.
5,0	The student is able to work individually and draws conclusions from the design process as well as follows the principles of professional ethics is aware of the responsibility for the safety of own work and the team.

VI. OTHER USEFUL INFORMATION ABOUT THE SUBJECT	
1.	Information on where to read auxiliary materials and literature: <i>According to the type of materials - during classes, in the lecturer's room, in the university and faculty library.</i>
2.	Information on the location of the classes: <i>Showcase at the Faculty of Civil Engineering, website of the Faculty of Civil Engineering.</i>
3.	Information on the date of classes (day of the week / hour): <i>Showcase at the Faculty of Civil Engineering, website of the Faculty of Civil Engineering.</i>
4.	Information on consultation (hours + place): <i>Schedule of consultations on the website of the Civil Engineering Department and on the door of room 47 or 55</i>