

THE CARD OF DESCRIPTION THE EDUCATION MODULE			
Name of course/module CIVIL ENGINEERING 3 - PROJECT			Code AU_K_1.4_004
Main field of study ARCHITECTURE AND URBAN PLANNING		Education profile (general academic, practical) general academic	Year / Semester II/4
Specialization -		Language of course: Polish	Course (core, elective) core
Hours: Lectures: Classes: Laboratory classes: Projects / seminars: 30			Number of points 2
Level of qualification: I	Form of studies (full-time studies/part-time studies) Full-time studies and part-time studies	Education area(s) Technical Sciences	ECTS division (number and %) 2 100%
Course status in the study program (basic, directional, other) directional		(general academic, from other field of study) -	
Responsible for course/lecturer: mgr inż. Katarzyna Starzecka e-mail: kstarzecka@gmail.com tel. 061 665 33 05 Faculty of Architecture Division of Public Architecture and Housing ul. Nieszawska 21, 60-965 Poznań tel.: 061 665 33 05		Responsible for course/lecturer: mgr inż. arch. Michał Pawłowski e-mail: michal@kombinat.com.pl tel. 061 665 33 05 Faculty of Architecture Division of Public Architecture and Housing ul. Nieszawska 21, 60-965 Poznań tel.: 061 665 33 05	
Prerequisites of knowledge, skills, social competences:			
1	Knowledge:	<ul style="list-style-type: none"> • Student has explicit, theoretically based knowledge including the key issues of civil engineering, materials technology and technical drawing principles, • Student knows the basic methods, techniques, tools and materials used at architectural and technical documentation of a simple structural facility inventory making, • Student knows and understands general principles related to copyright, 	
2	Skills:	<ul style="list-style-type: none"> • Student can acquire information from field specific literature, data bases and other properly selected sources in Polish and English, can integrate the acquired information, interpret , draw conclusions and come up with opinions supported with satisfactory reasons in the scope of civil engineering, materials technology and technical drawing, • Student can use the basic techniques and figurative signs typical for professional environment of architects and building engineers, • Student can prepare and present in Polish the technical drawings of existing or designed building facilities including the simple building design, • Student has self-education skills, • Student can use the techniques of manual drawing respectively to the performance of architectural inventory and technical documentation of simple building facility, • Student can carry out the measurements of existing buildings and premises as well as interpret them and record the results in the form of architectural and building inventory, 	

		<ul style="list-style-type: none"> • Student can carry out critical analysis of the manner of operation and assess the existing technical solution, especially simple building facilities, • Student can assess the usefulness of routine methods and tools to be used for preparing the architectural inventory and technical documentation of a simple structural facility and select and use the proper method and tools,
3	Social competences:	<ul style="list-style-type: none"> • Student understands the need for lifelong learning; can inspire and organize process of learning other people, • Student can respectively determine priorities for the execution of architectural inventory and technical documentation of simple building facility, • Student can identify and resolve the dilemmas in the scope of preparing architectural inventory and technical documentation of simple building facility,

Objective of the course:

- knowledge of forms and scopes of individual stages of designing process in the context Construction Law Act,
- knowledge of developing principles of building design of single family building,
- application of known principles related to building design of single family building in work,
- improving skills of preparing specification of individual single family building elements with particular emphasis of elements executed by architect,
- knowledge of traditional building technologies in design practice, develop the knowledge of building materials.

Learning outcomes

Knowledge:

number (symbol)	Having completed the course, student can:	Reference to the outcomes of the learning process in the area of technical sciences
W01	Student has explicit, theoretically based knowledge including the key issues of civil engineering, materials technology and principles of preparing building design of single family building.	AU1_W01
W02	Student knows the basic methods, techniques, tools and materials used at preparing the building design of single family building.	AU1_W09
W03	Student has detailed knowledge related to scope and form of building design of single family building in architectural and building branch.	AU1_W12

Skills:

U01	Student can acquire information from field specific literature, data bases and other properly selected sources, can integrate the acquired information, interpret, draw conclusions and come up with opinions supported with satisfactory reasons in the scope of civil engineering, materials technology and building technologies typical for single family buildings.	AU1_U01
U02	Student has self-education skills.	AU1_U02
U03	Student can prepare and present in Polish the building design including single family building.	AU1_U03
U04	Student can communicate using names of elements of single family building typical for professional environment of architects and building engineers.	AU1_U05

U05	Student can use techniques of manual drawings respectively to the performance the building design of single family building.	AU1_U06
U06	Student can use analytical methods to design the elements of single family building (e.g. the size estimation of construction element, can calculate the heat insulating power of building partition).	AU1_U08
U07	Student can assess the usefulness of routine methods and tools to be used for preparing the building design of single family building and select and use the proper method and tools.	AU1_U13
U08	Student can identify the elements of single family building and on the basis thereof, can draw up specifications, especially technical description according to requirements for architectural and building designs.	AU1_U15
U09	Student can – according to traditional technology and on the basis of architectural conception – prepare the building design of single family building.	AU1_U15
Social competences:		
K01	Student can identify and resolve the dilemmas in the scope of preparing building design of single family building.	AU1_K01
K02	Student understands the need for lifelong learning; can inspire and organize process of learning other people.	AU1_K03
K03	Student is aware of the importance of proper selection the technical solutions that eliminate thermal energy loss and use of alternative energy sources and their influence on environment and related with that the responsibility for making decisions.	AU1_K05
K04	Student can respectively determine priorities for the preparation of building design of single family building.	AU1_K06
Methods of check the learning outcomes:		
The credit conditions and assessment method of project:		
An important criterion for assessing the project are:		
<ul style="list-style-type: none"> – knowledge of basic principles of technical drawing required to develop the building documentation of single family building, including principles of imitation of architectural form, description and dimensioning of documentation elements, use of figurative signs, principles of technical writing, – knowledge of single family building elements and their naming, principles of forming and designing, – knowledge of traditional building technologies and materials their properties and scope of using in single family housing, – knowledge of form and scope of building design, – the ability to imitation of spatial form of single family building in the form of flat drawings (views, sections, facades etc.), axonometry, – the use of drafting tools and materials and the ability to use the manual drawing techniques, – the ability to select the proper size of sheet and correct placement of contents, – the ability to description and dimensioning of technical drawings using technical writing, – the ability to compose the technical drawing, – technical correctness of adopted solutions, – aesthetic and readability of projects. 		
Forming evaluation:		
<ul style="list-style-type: none"> – reviews and partial grades, including individual stages of building design creation, checking the progress of project and knowledge degree of theoretical issues and their practical use. Discussion of individual design work effects in the forum of group, presentation of the most often mistakes. – final grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0. 		
Summary score:		
<ul style="list-style-type: none"> – final reviews, including the completed design task, which is summary of knowledge and practical skills obtained during realization of all creation projects stages . Discussion of individual design 		

work effects in the forum of group, presentation of the most often mistakes,

- condition for passing is obtain positive grades from all partial reviews and correct completion of project within the deadline,
- final grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.

Summary score:

- final review including completed design tasks, which are the summary of knowledge and practical skills obtained during implementation of all stages of project formation. Discussion of effects of individual design work in the forum of group, presentation of the most common mistakes.
- The condition of course credit is obtain positive grades from all partial reviews and correct completion of project within the deadline.
- Final grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.

Course contents

Design classes in the scope of develop the building documentation of single family building according to conception earlier developed by student, performed individually by students according to consultations and tips of teacher, manual draw with 2H pencil on the paper to redrawing of ink on the tracing paper.

Classes no. 1

Introducing students with classes subject matter, reminder the scope of building design in accordance to Regulation of the Minister of Infrastructure of 3rd July, 2003 on the detailed scope and form of building design (Journal of Laws of 10th July, 2003) and principles of technical drawing according to existing norms – designations, dimensioning, lines. Discussion of traditional technologies of single family buildings.

Classes no. 2

Selection of technology of walls and ceilings and foundation method. Adopt the basic structural solutions for earlier developed conception of single family building and adaption of its dimensional parameters to conditions of adopted technologies. Redrawing conception without architectural details with emphasis of span and directions of ceilings support. Schematic views on the scale of 1:50 with pencil on the tracing paper with designation of structural axis.

Classes no. 3

Substantiation of structural schema for building, corrections of rafter framing and ceiling schemas, determine the technologies for flues (ventilation only gravitational), selection of thermal energy source, selection of technology for window and door lintels. Views on the scale 1:50 with pencil on the paper with designation of risers and location of feed of central heating and domestic hot water.

Classes no. 4

Discussion of dimensioning principles of door-ways and window openings in relation to carpentry dimensions, discussion of issues of sanitary systems in single family building and principles of their tracing, explanation of principles of designing and drawing stairs in technical documentation, discussion of measurements issues of usable surface.

Classes no. 5

Introduction additional element into a drawing the „empty” building holes in load-bearing walls, and also stairs and flues, determine the foundation level and height parameters of storeys, and also the level of ground floor in reference to surrounding area. Views and schematic section on the scale 1:50 with pencil on the paper with designation of stairs, pillars, lintels and main beams.

Classes no. 6

Introduction additional element into a drawing the window and door carpentry on views and section, discussion of estimation principles of dimensions and describing the construction elements, selection of dimensions of rafter framing, ceiling, main beams, lintels and pillars. Views and schematic section on the scale 1:50 with pencil on the paper with labels of construction elements.

Classes no. 7

Discussion of foundation principles of single family buildings, selection of technologies of water insulations, selection of foundations dimensions for construction elements, stairs, heavy chimney stacks. Views and schematic section on the scale 1:50 with pencil on the paper with foundations layout.

Classes no. 8

Introduction additional element into a drawing the elements of architectural arrangement – partition walls, balustrades, descriptions of premises. Views and schematic section on the scale 1:50 with pencil on the paper with premises layout.

Classes no. 9

Introduction additional element into a drawing the built-in and movable elements of architectural arrangements of premises – sanitary authorities, embedded devices, built-in wardrobes, furnishings, vehicles. Discussion of principles of internal dimensioning the views. Views and schematic section on the scale 1:50 with pencil on the paper with arrangement of premises and internal dimension lines.

Classes no. 10

Discussion of principles of architectural designing the facades, types of layered walls and selection of technology, concept of technology supplier and workshop project, problems of thermal protection of building, issues of energy saving. Views and schematic section on the scale 1:50 with pencil on the paper with emphasis of finishing facades technology.

Classes no. 11

Introduction additional element into a drawing the elements of territory development on the view of ground floor, cellars and higher storeys – parking lots, driveways, terrain stairs, hardening, finish casings, terraces, balconies, roofing. Discussion of principles of external dimensioning the buildings. Views and schematic section on the scale 1:50 with pencil on the paper with the nearest territory development and external dimensioning lines.

Classes no. 12

Drawing the view of roof, flat roof, discussion of practical issues the drainage of rainwater and snow from building and principles of designing the storm-water drainage of building. Finished views and schematic section on the scale 1:50 with pencil on the paper with view of reinforced roof.

Classes no. 13

Discussion of principles of drawing the sections and facades – vertical dimensioning of building, elements of descriptions and designations. Discussion of scope and form of technical description. Finished views, section and facades on the scale 1:50 with pencil on the paper, ready to redrawing the ink on the tracing paper, technical description on the A-4 format.

Classes no. 14

Discussion of scope and form of territory development project, drawing the building on the map to design objectives, issues of territorial development and dimensioning principles. The view of territory development on the map to design objectives on the scale 1:500 with elements of territorial development and dimensioning and description of territory development.

Classes no. 15

Completion of design works – giving the project and semester credit.

Basic bibliography:

1. Rozporządzenie Ministra Infrastruktury w sprawie szczegółowego zakresu i formy projektu budowlanego_tekst ujednolicony (D.U. Nr 228 poz. 1513 z 2008 r.)
2. **Rozporządzenie Ministra Infrastruktury w sprawie warunków techniczne, jakim powinny odpowiadać budynki i ich usytuowanie - tekst ujednolicony (Dz. U. Nr 239, poz. 1597 z 2010 r.)**
3. Markiewicz P., Budownictwo ogólne dla architektów, Archi-Plus, Warszawa
4. Żeńczykowski W.. Budownictwo ogólne 2/1, Arkady , Warszawa
5. Żeńczykowski W.. Budownictwo ogólne 2/2, Arkady , Warszawa
6. Żeńczykowski W.. Budownictwo ogólne 3/1, Arkady , Warszawa
7. Żeńczykowski W.. Budownictwo ogólne 3/2, Arkady , Warszawa
8. PN-EN ISO 3098-0:2002 Dokumentacja techniczna wyrobu. Pismo. Część 0: Zasady ogólne.
9. PN-EN ISO 3098-2:2002 Dokumentacja techniczna wyrobu. Pismo. Część 2: Alfabet łaciński,

cyfry i znaki.

10. PN-EN ISO 4157-1:2001 Rysunek budowlany. Systemy oznaczeń. Część 1: Budynek i części budynków.
11. PN-EN ISO 4157-2:2001 Rysunek budowlany. Systemy oznaczeń. Część 2: Nazwy i numery pomieszczeń.
12. PN-EN ISO 7519:1999 Rysunek techniczny. Rysunki budowlane. Ogólne zasady przedstawiania na rysunkach zestawieniowych.
13. PN-B-01025:2004 Rysunek budowlany. Oznaczenia graficzne na rysunkach architektoniczno-budowlanych.(Zamiast PN-70/B-01025)
14. PN-EN ISO 128-20:2002 Rysunek techniczny – Zasady ogólne przedstawiania – Część 20: Wymagania podstawowe dotyczące linii. (Zamiast PN-82/N-01616)
15. PN-EN ISO 128-23:2002 Rysunek techniczny – Zasady ogólne przedstawiania – Część 23: Linie na rysunkach budowlanych.
16. PN-ISO 4069:1999 Rysunek budowlany. Oznaczanie powierzchni na przekrojach i widokach. Zasady ogólne.
17. PN-B-01030:2000 Rysunek budowlany. Oznaczenia graficzne materiałów budowlanych. (Łącznie z normą PN-ISO 4069:1999 zamiast PN-70/B-01030)
18. PN-B-01029:2000 Rysunek budowlany. Zasady wymiarowania na rysunkach architektoniczno-budowlanych.(Zamiast PN-60/B-01029)
19. PN-ISO 129:1996 i PN-ISO 129/Ak Rysunek techniczny. Wymiarowanie. Zasady ogólne. Definicje. Metody wykonania i oznaczenia specjalne. (Zamiast PN-82/N-01614 w zakresie zasad porządkowych, sposobów wymiarowania i uproszczeń wymiarowych)
20. PN-ISO 9431:1994 Rysunek budowlany. Części arkusza rysunkowego przeznaczone na rysunek, tekst i tabliczkę tytułową.
21. PN-ISO 7200:1994 Rysunek techniczny. Tabliczki tytułowe.
22. PN-80/N-01612 Rysunek techniczny. Formaty arkuszy.
23. PN-86/N-01603 Rysunek techniczny. Składanie formatów arkuszy.

Complementary bibliography:

1. Neufert E., Podręcznik projektowania architektonicznego, Arkady 1996.
2. praca zbiorowa, Poradnik majstra budowlanego, Arkady 1992.
3. Drouet Z., Kędziński S., Znormalizowane oznaczenia na rysunkach, Wydawnictwa normalizacyjne "Alfa" 1985.
4. PN-EN ISO 3098-3:2002 Dokumentacja techniczna wyrobu. Pismo. Część 3: Alfabet grecki.
5. PN-EN ISO 3098-4:2002 Dokumentacja techniczna wyrobu. Pismo. Część 4: Znaki diakrytyczne i specjalne alfabetu łacińskiego.
6. PN-EN ISO 5455:1998 Rysunek techniczny. Podziałki.
7. PN-ISO 8560:1994 i PN-ISO 8560:1994/Ap1:1999 Rysunek techniczny. Rysunki budowlane. Przedstawianie modularnych wymiarów, linii i siatek.
8. Katalogi i informacje techniczne producentów materiałów budowlanych i dostawców technologii

budowlanych		
9. Tablice wyrobów stalowych		
10. Prawo budowlane		
The workload of student		
Form of activity	Hours	ECTS
Total workload	59	1
Activities that require individual contact with the teacher	33	1
Activities of practical	26	1

Balance the workload of the average student

Form of activity	Number of hours
participation in lectures	-
participation in classes/ laboratory classes (projects)	30 h
preparation for classes/ laboratory classes	13 x 2 h = 26 h
preparation to colloquium	-
participation in consultation related to realization of learning process	3 x 1 h = 3 h
preparation to the exam	-
attendance at exam	-

Total workload of student: **2 ECTS credits** **59 h**

As part of this specified student workload

- activities that require direct participation of teachers:

$$30 \text{ h} + 3 \text{ h} = 33 \text{ h}$$

$$1,12 \approx 1 \text{ ECTS credit}$$