



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Civil Engineering 3

Course

Field of study

Year/Semester

Architecture

II / 4

Area of study (specialization)

Profile of study

Architecture

general academic

Level of study

Course offered in

First-cycle studies

English

Form of study

Requirements

full-time

compulsory

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

0

0

0

Tutorials

Projects/seminars

0

30

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

dr inż. arch. Adam Sieniecki

adam.sieniecki@put.poznan.pl

Wydział Architektury

ul. Jacka Rychlewskiego 2, 61-131 Poznań

tel. 61 665 33 06

Responsible for the course/lecturer:

mgr inż. Katarzyna Starzecka

dr inż. arch. Jacek Gałkowski

dr inż. arch. Adam Sieniecki

mgr inż. arch. Jędrzej Suchecki

mgr inż. arch. Piotr Springer

mgr inż. arch. Jędrzej Suchecki

Prerequisites

The student has a basic knowledge of general construction, material science, physics and mathematics useful for developing simple technical drawings in the field of architectural and construction inventory. The student has basic knowledge of technical drawing and general construction related to the architectural object.

The student has well-ordered, theoretically grounded general knowledge covering the key issues in the field of general construction and materials science.

The student knows the basic methods, techniques, tools and materials used in the development of simple tasks in the field of free-hand technical drawing, general construction and material science.

Student knows and understands the general principles of copyright law.



The student is able to obtain information from literature, databases and other properly selected sources, including the English language. They are able to integrate information, interpret it and draw conclusions as well as formulate and justify opinions. to draw conclusions and to formulate and justify opinions.

Students will be able to communicate using concepts related to general construction and material science in a professional environment of architects.

Students will be able to prepare and present technical drawings in English;

Students can identify directions for further learning and implement the process of self-education.

The student is able to use hand drawing techniques appropriate to the realisation of technical drawings.

Students can perform measurements of existing buildings and rooms, interpret and record their results;

The student is able to use analytical methods to design elements of a simple civil structure (e.g. estimate the overall dimensions of the structure, calculate thermal insulation of partitions).

Students can perform measurements of existing buildings and rooms, interpret and record their results in the form of architectural and construction inventory.

Students understand the need for lifelong learning, they are able to inspire and organize the learning process of others.

The student is able to adequately determine priorities for the realization of a project task specified by the instructor.

Students are able to identify and solve dilemmas related to the creation of technical documentation of a simple construction object.

The student is able to think and act analytically.

Course objective

Design classes objectives:

- getting to know forms and scopes of particular phases of design process in the context of the Act Construction Law;
- knowing the principles of preparing a technical documentation for a single-family building
- apply learned principles about single-family building design to the work performed;
- perfecting the ability to prepare lists of individual building elements in single-family building with special attention to those prepared by the Architect;
- learning about traditional building technologies in design practice,
- develop existing students knowledge of building materials.

Course-related learning outcomes

Knowledge

A.W1. architectural design for the implementation of simple tasks, in particular: simple facilities taking into account the basic needs of users, single- and multi-family housing, service facilities in residential complexes, public facilities in an open landscape or in an urban environment;

Skills

A.U1. design an architectural object by creating and transforming space so as to give it new value - in accordance with a given program that takes into account the requirements and needs of all users;



A.U6. integrate information obtained from various sources, formulate their interpretation and critical analysis;

A.U7. communicate using various techniques and tools in a professional environment appropriate for architectural and urban design;

A.U8. prepare architectural and construction documentation in appropriate scales in relation to the conceptual architectural design;

Social competences

A.S1. independent thinking to solve simple design problems;

A.S2. taking responsibility for shaping the natural environment and cultural landscape, including the preservation of the heritage of the region, country and Europe.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

An important evaluation criterion is to check:

- knowledge of technical drawing principles necessary to prepare architectural-technical documentation for a single-family house, including principles of representation of architectural form, description and dimensioning of documentation elements, use of graphic designations, principles of technical writing;
- knowledge of single-family building elements, their nomenclature, principles of shaping and design;
- knowledge of modern building technologies and materials, their properties and scope of application in single-family housing construction;
- knowledge of the form and scope of the construction project;
- ability to represent the spatial form of a single-family building in flat drawings (plans, sections, elevations, etc.), axonometry;
- the ability to use drafting tools and materials and the ability to apply freehand drawing techniques;
- the ability to choose the correct size of the worksheet and the correct placement of content;
- the ability to describe and dimension technical drawings using technical writing;
- the ability to assemble technical drawings;
- technical correctness and energy efficiency of the adopted design solutions;
- ability to prepare technical documentation legibly and aesthetically.

Formative assessment:

- The progress of design works and technical knowledge are assessed on an ongoing basis during subsequent classes in the form specified by teacher.
- Evaluation of drawing tasks.

Summative Evaluation:

- The assessment of knowledge and skills affects the semestral grade.
- The evaluation of the completed project work.



The adopted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.

Successful completion of the module depends on the student's achievement of all learning outcomes specified in the syllabus.

Programme content

Design classes content:

Design exercises in the development of technical documentation of a single-family building, according to a concept previously developed by the student, prepared by students individually according to consultations and instructions of the teacher, handwritten in 2H pencil on paper to be redrawn in ink on tracing paper or in CAD software.

Class #1: Getting the students acquainted with the subject matter of the classes, reminding them about the scope of the construction design in relation to the Regulation of the Minister of Infrastructure of July 3, 2003 on the detailed scope and form of the construction design (Dz. U. z dnia 10 lipca 2003 r.) and principles of technical drawing according to valid standards - markings, dimensioning, lines. Discussion of traditional single-family building technologies. Learn the main guidelines and principles of preparing technical documentation for a multi-family residential building through an e-learning course available on the university's eMoodle platform.

Class #2: Selection of wall and floor technology and foundation method. Choosing of basic structural solutions for the previously developed concept of a single-family building and adjustment of its dimensional parameters to the requirements of the adopted technologies. Redraw concept with architectural details omitted including spans and ceiling support directions. Schematic projections at 1:50 scale in pencil on paper with structural axes marked.

Class #3: Concretization of the construction scheme for the building, corrections of the trusses and ceilings, definition of technology for chimney ducts (gravitational ventilation only), selection of source of thermal energy, selection of technology for window and door lintels. Plans C in scale 1:50 in pencil on paper with marking of installation risers and location of central heating and hot water supply.

Class #4: Discussion of the principles of dimensioning door and window openings in relation to the dimensions of the carpentry, discussion of the issues of sanitary installations in single-family buildings and the principles of their routing, explanation of the principles of designing and drawing stairs in the technical documentation, discussion of the issues of measuring the usable area.

Class #5: Drawing of "empty" building openings in structural walls, as well as stairs and flue pipes, determination of foundation level and height parameters of floors, as well as ground level in relation to surrounding terrain. Plans and schematic cross-section at 1:50 scale in pencil on paper indicating stairs, columns, lintels and stringers.

Class #6: Drawing of window and door joinery on projections and sections, discussion of rules of estimating dimensions and describing construction elements, selection of dimensions of rafter framing,



floor, beams, lintels and columns. Projections and a schematic cross-section on a scale of 1:50 in pencil on paper with labels of construction elements.

Class #7: Discussion of the principles of foundation of single-family buildings, selection of water insulation technology, selection of foundation dimensions for structural elements, stairs, heavy chimneys. Plans and schematic cross-section in scale 1:50 in pencil on paper with layout of foundations.

Class #8: Drawing elements of architectural arrangement - partition walls, balustrades, room descriptions. Plan and schematic cross-section in scale 1:50 on paper with layout rooms.

Class #9: Drawing of built-in and movable elements of architectural arrangement of rooms - sanitary ware, built-in appliances, closets, furniture, vehicles. Discuss the principles of internal dimensioning of projections. Plans and a schematic cross-section at a scale of 1:50 in pencil on paper with room arrangements and internal dimension lines.

Class #10: Discussion of the principles of architectural façade design, types of sandwich walls and selection of technology supplier and workshop design, problems of thermal protection of buildings, energy efficiency issues. Projections and schematic cross-section in the scale 1:50 pencil on paper with consideration of facade finishing technology.

Class #11: Drawing the land development elements on the ground plan, basement and upper floors - exits, driveways, terrain stairs, paving, bands, terraces, balconies, canopies. Discussion of the principles of external dimensioning of buildings, projections and schematic cross-section at a scale of 1:50 in pencil on paper with the nearest land development and external dimension lines.

Class #12: Drawing a plan of the roof, flat roof, discussing practical problems of draining rainwater and snow from the building and the principles of designing rainwater drainage system of the building. Finished projections and schematic cross-section at 1:50 scale in pencil on paper with projection of developed roof. Class #13-14: Consultation and verification of completion of drawing assignment.

Class #13: Discussion of the principles of section and elevation drawing - vertical dimensioning building, elements of descriptions and designations. Discussion of the scope and form of technical description. Finished projections, cross-sections and elevations in scale 1:50 in pencil on paper, ready to redraw in ink on tracing paper, technical description in A-4 format.

Class #14: Discussion of the scope and form of the land development project (site plan), drawing building on the map for design purposes, issues of land development and principles of dimensioning. Plan of the land development (site plan) on the map for design purposes in the scale 1:500 with the elements of the utilities and dimensioning and description of land development.

Class #15: Completion of the project work, credit of the semester.

Teaching methods

- Classes based on the use of various sources of knowledge (film, photographs, archival materials, source texts, documents, statistical yearbooks, maps, Internet, etc.).



- Project method / case study (sample study) - discussing different ways to solve design problems - collisions at the interface of architecture, construction and technical installations in the building.

- eLearning Moodle (a system for supporting the teaching process and distance learning).

Bibliography

Basic

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2. Rozporządzenie Ministra Infrastruktury w sprawie warunków techniczne, jakim powinny odpowiadać budynki i ich usytuowanie - tekst ujednoczony (Dz. U. Nr 239, poz. 1597 z 2010 r.)
- PN-EN ISO 3098-0:2002 Dokumentacja techniczna wyrobu. Pismo. Część 0: Zasady ogólne.
4. PN-B-01025:2004 Rysunek budowlany. Oznaczenia graficzne na rysunkach architektonicznobudowlanych. (Zamiast PN-70/B-01025)
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7. 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)
8. Markiewicz P., Budownictwo ogólne dla architektów, Archi-Plus, Arkady 2011;
9. Żeńczykowski W.. Budownictwo ogólne 2/1, Arkady , Warszawa
10. Żeńczykowski W.. Budownictwo ogólne 2/2, Arkady , Warszawa
11. Żeńczykowski W.. Budownictwo ogólne 3/1, Arkady , Warszawa
12. Żeńczykowski W.. Budownictwo ogólne 3/2, Arkady , Warszawa
13. E-script for the course "Civil Engineering 3".

Legislation:

14. Rozporządzenie Ministra Infrastruktury w sprawie szczegółowego zakresu i formy projektu budowlanego tekst ujednoczony (D.U. Nr 228 poz. 1513 z 2008 r.)
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Metody wykonania i oznaczenia specjalne. (Zamiast PN-82/N-01614 w zakresie zasad porządkowych, sposobów wymiarowania i uproszczeń wymiarowych)

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Breakdown of average student's workload

	Hours	ECTS
Total workload	86	3,0
Classes requiring direct contact with the teacher	48	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	86	3,0

¹ delete or add other activities as appropriate