

<b>COURSE DESCRIPTION CARD</b>			
The name of the course/module <b>GENERAL ENGINEERING 4 - PROJECT</b>			Code <b>A_K_1.5_007</b>
Main field of study <b>ARCHITECTURE</b>	Educational profile (general academic, practical) <b>general academic</b>		Year / term <b>III/5</b>
Specjalization <b>-</b>	Language of course: <b>Polish</b>		Course (core, elective) <b>core</b>
Hours: Lectures:                      Classes:                      Laboratory classes:	Projects / seminars: <b>30</b>		Number of points <b>2</b>
Level of qualification: <b>I</b>	Form of studies (full-time studies/part-time studies) <b>Full-time studies and part-time studies</b>	Educational area(s) <b>Technical Sciences</b>	ECTS distribution (number and %) <b>2                      100%</b>
Course status in the studies' program (basic, directional, other) <b>Directional</b>		(general academic, from a different major) <b>-</b>	
<b>Lecturer responsible for course/lecturer:</b>  mgr inż. Katarzyna Starzecka e-mail: kstarzecka@gmail.com Faculty of Architecture ul. Nieszawska 11A, 60-965 Poznań tel.: 061 665 33 05		<b>Lecturer:</b>  mgr inż. Katarzyna Starzecka e-mail: kstarzecka@gmail.com Faculty of Architecture ul. Nieszawska 11A, 60-965 Poznań tel.: 061 665 33 05	
<b>Prerequisites defined in terms of knowledge, skills, social competences:</b>			
1	<b>Knowledge:</b>	<ul style="list-style-type: none"> <li>– Student has explicit, theoretically based knowledge including the key issues of general engineering, materials technology and principles of preparing building design of single family building.</li> <li>– Student has detailed knowledge related to scope and form of building design of single family building in architectural and building branch.</li> <li>– Student knows the basic methods, techniques, tools and materials used at preparing the building design of single family building.</li> <li>– Student knows and understands general principles related to copyright.</li> </ul>	
2	<b>Skills:</b>	<ul style="list-style-type: none"> <li>– Student can acquire information from field specific literature, data bases and other properly selected Polish and English sources, can integrate the acquired information, interpret, draw conclusions and come up with opinions supported with satisfactory reasons in the scope of general engineering, materials technology and building technologies typical for single family buildings.</li> <li>– Student can communicate using names of elements of single family building typical for professional environment of architects and building engineers.</li> <li>– Student can prepare and present in Polish the building design including single family building.</li> <li>– Student has self-education skills.</li> <li>– Student can use techniques of manual drawings respectively to the performance the building design of single family building.</li> <li>– 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).</li> <li>– 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.</li> <li>– 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.</li> </ul>	

		– Student can – according to traditional technology and on the basis of any architectural conception – prepare the building design of single family building.
3	<b>Social competences:</b>	<ul style="list-style-type: none"> <li>– Student understands the need for lifelong learning; can inspire and organize process of learning other people.</li> <li>– 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.</li> <li>– Student can respectively determine priorities for the preparation of building design of single family building.</li> <li>– Student can identify and resolve the dilemmas in the scope of preparing building design of single family building.</li> </ul>
<b>Objective of the course:</b>		
<ul style="list-style-type: none"> <li>– presentation of forms and scopes of individual stages of designing process in the context of Construction Law Act,</li> <li>– presentation of developing principles of building design of multi-family building,</li> <li>– application of known principles related to building design of multi-family building in work,</li> <li>– improving the ability to preparing specification of individual multi-family building elements with particular emphasis of elements executed by architect,</li> <li>– presentation of modern building technologies in design practice, developing knowledge of building materials.</li> </ul>		
<b>Learning outcomes</b>		
<b>Knowledge:</b>		
W01	Student has knowledge of general engineering	AU1_W10
W02	Student has knowledge in the scope of basics of ergonomics, building law, organisation and economics of an investment process	AU1_W11
<b>Skills:</b>		
U01	Student can acquire information from field specific literature, data bases and other properly selected Polish and English sources, can integrate the acquired information, interpret, draw conclusions and come up with opinions supported with satisfactory reasons	AU1_U01
U02	Student can draw and dimension the basic structural and construction elements in an architectural concept and in the building plans and designs	AU1_U10
<b>Social competences:</b>		
K01	Student is aware of the importance of non-technical aspects and effects of engineering activities, in this impact upon the environment and liability for environment affecting decisions	AU1_K05
K02	Student can respectively determine priorities for the execution of goals set by himself/herself or by others; is fully aware of the importance of professional conduct; is aware of the liability for tasks performed jointly with others within the team work	AU1_K06
<b>The evaluation methods:</b>		
<b>The credit conditions and evaluation method of project:</b>		
An important criterion for assessing project is:		
<ul style="list-style-type: none"> <li>– knowledge of basic principles of technical drawing required to develop the building documentation of multi-family building, including principles of imitation of architectural form, description and dimensioning of documentation elements, use the figurative signs, principles of technical writing,</li> <li>– knowledge of multi-family building elements and their naming, principles of forming and designing,</li> <li>– knowledge of modern technologies and building materials, their properties and scope of using in multi-family housing,</li> <li>– knowledge of form and scope of building design,</li> <li>– the ability to imitation of spatial form of multi-family building in the form of flat drawings (views, sections, facades etc.), axonometry,</li> <li>– the use of drafting tools and materials and the ability to use the manual drawing techniques,</li> <li>– the ability to select the proper size of sheet and correct placement of contents,</li> <li>– the ability to description and dimensioning of technical drawings using technical writing,</li> </ul>		

- the ability to compose the technical drawing,
- technical correctness and energy saving of adopted design solutions,
- aesthetic and readability of projects.

**Formative assessment:**

- reviews and partial grades, including individual stages of building design creation, checking the progress of project and knowledge 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.

**Summative assessment:**

- 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.

**Positive grade for module depends on achieved by student all learning outcomes specified in the syllabus.**

**Course contents**

Design classes in the scope of develop the building documentation of multi-family building with underground garage hall and services in the ground floor according to conception provided by teacher, 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 or in CAD program.

**Classes no. 1**

Presentation of classes subject matter, reminder the scope of building design in accordance to Regulation of the Minister of Infrastructure of 3<sup>rd</sup> July, 2003 on the detailed scope and form of building design (Journal of Laws of 10<sup>th</sup> July, 2003) and principles of technical drawing according to existing norms – designations, dimensioning, lines. Discussion of modern technologies of multi-family buildings and basic issues of designing the garage hall.

**Classes no. 2**

Selection of technology of walls and ceilings and foundation method. Adopt the basic structural solutions for earlier developed conception of multi-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 structure schema for building, corrections of rafter framing and ceiling schemas, determine the technologies for flues, 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**

Reminder the dimensioning principles of door-ways and window openings in relation to carpentry dimensions, discussion of issues of sanitary systems in multi-family buildings and principles of their tracing, explanation of principles of designing and drawing staircase and passenger lifts in multi-family buildings and issues of sound insulation and basic concepts of fire protection.

**Classes no. 5**

Sketching in the „empty” building holes in load-bearing walls, and also stairs and chimney stacks, determine the foundation level and height parameters of storey, 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**

Sketching in 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 multi-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**

Sketching in 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. 8**

Sketching in 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**

Sketching in the built-in and movable elements of architectural arrangements of premises – sanitary facilities, 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**

Sketching in the elements of land management on the view of ground floor, cellars and higher storeys – park lots, driveways, terrain stairs, hardening, finish casings, terraces, balconies, roofing. Reminder of principles of external dimensioning the buildings. Views and schematic section on the scale 1:50 with pencil on the paper with the nearest land management and external dimension lines.

**Classes no. 12**

Drawing in the view of roof, flat roof, discussion of practical issues the drainage of rainwater and snow from building and designing principles of 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**

Reminder 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**

Reminder of scope and form of territory development project, sketching in the building on the map to design objectives, issues of territorial development and dimensioning principles. The view of territory development on the map for 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: Budynki 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.

**Supplementary bibliography:**

1. Neufert E., Podręcznik projektowania architektonicznego, Arkady 1996.

2. praca zbiorowa, Poradnik majstra budowlanego, Arkady 1992.

3. Drouet Z., Kędzierski 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. Podziały.

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 student workload

Form of activity	Hours	ECTS
Overall expenditure	59	2
Classes requiring an individual contact with teacher	33	1
Practical classes	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	-

Overall expenditure of student:

**2 ECTS credits**

**59 h**

As part of this specified student workload

- activities that require direct participation of teachers:

30 h + 3 h = **33 h**

**1,12 ≈ 1 ECTS credit**