

COURSE DESCRIPTION CARD

The name of the course/module GENERAL ENGINEERING 2 – LECTURE GENERAL ENGINEERING 2 - PROJECT		Code A_K_1.3_004
Main field of study ARCHITECTURE	Educational profile (general academic, practical) general academic	Year / term II/3
Specjalization -	Language of course: Polish	Course (core, elective) core
Hours: Lectures: 15 Classes: Laboratory classes: Projects / seminars: 30		Number of points 3
Level of qualification: I	Form of studies (full-time studies/part-time studies) Full-time studies and part-time studies	Educational area(s) Technical Sciences
ECTS distribution (number and %) 3 100%		
Course status in the studies' program (basic, directional, other) directional		(general academic, from a different major) -
Lecturer responsible for course/lecturer: mgr inż. Katarzyna Starzecka e-mail: kstarzecka@gmail.com Faculty of Architecture ul. Nieszawska 13A, 61-021 Poznań tel. 61 665 33 05		Lecturer: mgr inż. Katarzyna Starzecka e-mail: kstarzecka@gmail.com Faculty of Architecture ul. Nieszawska 13A, 61-021 Poznań tel. 61 665 33 05
Prerequisites defined in terms of knowledge, skills, social competences:		
1	Knowledge:	<ul style="list-style-type: none"> – Student has basic knowledge of general engineering, materials technology, physics and mathematics, useful for the development of simple technical drawings in the scope of architectural and building inventory, – Student has basic knowledge of technical drawing and general engineering related to architectural facility, – Student has explicit, theoretically based knowledge including the key issues of general engineering and materials technology, – Student has basic knowledge on development trends in the scope of general engineering and materials technology, – Student knows the basic methods, techniques, tools and materials used at making the simple tasks in the scope of manual technical drawing , general engineering and materials technology, – Student knows and understands basic principles related to the 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 as well as draw conclusions and come up with opinions supported with satisfactory reasons, – Student can communicate using concepts related to general engineering and materials technology in the professional environment of architects, – Student can prepare and present the technical drawing in Polish, – Student can specify the directions of further education and can undertake the self-education process, – Student can use the techniques of manual drawing respectively to the performance of technical drawings, – Student can carry out the measurements of existing buildings and premises as well as record the results and interpret them, – Student can use analytical methods to design the elements of simple building facility (e.g. the size estimation of construction element, can calculate the heat insulating power of building partition), – Student can carry out critical analysis and assess the existing technical solutions,

		especially simple building facilities,
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 design goals design set by the teacher, – Student can identify and solve the dilemmas in the scope of preparing technical documentation of simple building facility, – Student can think and act in analytic manner.
Objective of the course - lecture: <ul style="list-style-type: none"> – Introduction to the issues of conditions and possibilities of using individual building elements of building finishing – presentation and show the advantages of designing in “a building module”; presentation of carpentry types - presentation of types and scope of existing installations and building elements, on which they are affecting; – presentation of intersectoral coordination, which is unpopular part of design. – presentation of basic legislation related to designing and building execution, – learning the legislation, which project must be fulfill in the design process, – awareness of professional responsibility during designing, execution and also property management Objective of the course - project: <ul style="list-style-type: none"> – presentation of principles for preparing the technical drawings as a basic component of building and executive project, – learning the principles for inventory of premises and building as well as reflect the existing state in documentation – presentation of the building design form – use of known principles concerning technical drawing in executing work – learning the existing principles of preparing juxtapositions of the individual building elements with particular emphasis of rules, which are executed by architect – reminder of knowledge of building materials – improving the knowledge of connections between individual materials – put knowledge into practice about finishing materials 		
Learning outcomes		
Knowledge:		
W01	Student has knowledge of general engineering	AU1_W10
W02	Student has knowledge in the scope of basics of ergonomics, building law	AU1_W11
Skills:		
U01	Student can acquire information from publications, data bases and other Polish and English sources, can integrate and interpret the said information and draw conclusions as well as voice and justify opinions in the scope of general engineering, materials technology and technical drawing.	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
Social competences:		
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
The evaluation methods:		
The credit conditions of the lectures: <ul style="list-style-type: none"> - The credit prerequisite is obtain positive grade of the final test consisting of 7 questions. To pass the course, student has to obtain minimum 4 points of 7 possible points. Test is at the last lecture in the semester. Summative assessment: <ul style="list-style-type: none"> - final grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0. The credit conditions and assessment method of project: <p>An important criterion for assessing the project are:</p> <ul style="list-style-type: none"> – knowledge of basic principles of technical drawing required to development of subsequent design tasks and inventory, including principles of imitation of architectural form, description and dimensioning the documentation elements, use of figurative signs, principles of technical writing, 		

- knowledge of basic building components, their naming, principles of forming and designing,
- knowledge of basic building technologies and materials, their properties and scope of using in building engineering,
- knowledge of basic elements of building project,
- the ability to imitation of spatial form of building in the form of flat drawings (views, sections, facades etc.), axonometry,
- the use of basic drafting tools and materials, including 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 executed projects.

Formative assessment:

- reviews and partial grades, including individual design task, which check the 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.

Summative assessment:

- final review, including the last design task, which is summary of knowledge and practical skills obtained during realization all previous projects. Discussion of individual design work effects in the forum of group, presentation of the most often mistakes.

- comprehensive review covering all previous executed projects, in order to verification of progress and development of student practical skills during the whole semester

- prerequisites for passing is obtain positive grades from all reviews,

- 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

Lectures:

Lecture no. 1

Finishing elements of buildings.

Discussion of structural elements of building finishes: plasters, wall linings, paint coatings and floors with particular emphasis on advantages and disadvantages as well as possibilities of using the individual solutions.

Lecture no. 2

Classification in building engineering. The window and door carpentry; building insulation

Discussion of elements classification in building engineering, including dimension classification. Presentation of basic advantages of classification with particular emphasis on time aspect of investment realization and its costs. Discussion of basic types of window and door carpentry – advantages and disadvantages of individual solutions.

Lecture no. 3

Installations in the building engineering and intersectoral coordination

Installations in housing, multi-family building, public buildings. Types of existing installations, building requirements conditioning the possibility of them conducting, the need of use and their impact on the process of architectural and structural designing. Discussion of conducting methodology and the tasks of intersectoral coordination on the basis of realized facilities. Presentation of difficulty related to coordination, especially in public and industrial buildings.

Lecture no. 4

The legal procedures related to building process

Discussion (preliminary) of Act of planning and spatial development and Act of Building Legislation and the Regulation of the Minister of Infrastructure on the detailed scope and form of building design. Presentation of the scope of necessary arrangements and legal procedures in the designing and executing process. Discussion of regulations and statements.

Lecture no. 5

Technical specifications, which should be fulfilled by buildings and their location.

Discussion of technical conditions, which should be fulfilled by buildings – introduction and general discussion with the detailed description of conditions for housing. Information on fire protection and consequences those regulations for designing the space and overall dimension of individual structural elements.

Lecture no. 6

Maintenance of buildings, the disasters and damages of buildings.

The causes of irregularities in buildings: design, executive, operational, ecological. Discussion of the most important causes of breakdown and also construction disasters.

Lecture no. 7

Colloquium

Credit of semester.

Design classes in the scope of basics of technical drawing performed individually by students according to

consultations and tips of teacher, manual draw with 2H pencil on the paper or ink on tracing paper.

Classes:

Class no. 1

Introducing students with classes subject matter, discussion of technical drawings principles, according to existing norms – designations, dimensioning, lines

Class no. 2

Practice the manual technical drawings of given symbols and figurative signs accordance with the principles of distribution of elements on the sheet. Technical manual drawing with 2H pencil on the paper. The control of drawing works, partial assessment no. 1.

Class no. 3

Practice the manual technical drawings of given connections of construction elements (e.g. constructional wall + beam-and-block ceiling) and views of given building materials in axonometry. Manual technical drawing in ink on tracing paper. The control of drawing works, partial assessment no. 2.

Class no. 4

Discussion of principles of buildings and premises inventory.

Class no. 5

Execution the inventory of room and bathroom in the scope of view and two sections on the scale 1:50. Technical manual drawing with 2H pencil on the paper using technical writing.

Class no. 6

Consultations and verification of drawing task implementation. Once approved, manual draught on the tracing paper using technical writing. The control of drawing works, partial assessment no. 3.

Class no. 7

Discussion of scope of building project according to Regulation of the Minister of Infrastructure of 3rd July, 2003 on the detailed scope and form of building design (Journal of Laws of 19th July, 2003) in the scope concerning the architectural project.

Class no. 8

Execution of building drawing of selected single family building in the scope of view and section through staircase in the scale 1:50 (to work can be used the conception of typical project). Manual technical drawing in ink on tracing paper.

Class no. 9

Consultations and verification of design project.

Class no. 10

The control of design works, partial assessment no. 4. Correctness assessment of building drawing and its compliances with discussed principles of technical drawing and scope and form of building project.

Class no. 11

Discussion of implementation principles of carpentry, ironwork and elements of rafter framing.

Class no. 12

Execution of selected statement of the building drawn in previous task. The scope and scale of drawings agreed individually with the teacher. Manual technical drawing in ink on tracing paper using technical writing. The control of drawing works, partial assessment no. 5.

Class no. 13

Reminding the knowledge of building finishing elements.

Class no. 14

Execution of finishing interiors project of 2 premises – room and kitchen with detailed description and selection of finishing materials. In work should be located details of connections of materials and elements e.g. ceramic tile – plaster, floor – wall. Manual technical drawing with 2H pencil on the paper using technical writing. The control of drawing works, partial assessment no. 6.

Class no. 15

Completion of design work – credit of semester.

Basic bibliography:

1. praca zbiorowa, Poradnik majstra budowlanego, Arkady 1992.
2. Markiewicz P., Budownictwo ogólne dla architektów, Archi-Plus, Warszawa
3. Żeńczykowski W.. Budownictwo ogólne 2/1, Arkady , Warszawa
4. Żeńczykowski W.. Budownictwo ogólne 2/2, Arkady , Warszawa
5. Żeńczykowski W.. Budownictwo ogólne 3/1, Arkady , Warszawa
6. Żeńczykowski W.. Budownictwo ogólne 3/2, Arkady , Warszawa
7. PN-EN ISO 3098-0:2002 Dokumentacja techniczna wyrobu. Pismo. Część 0: Zasady ogólne.
8. PN-EN ISO 3098-2:2002 Dokumentacja techniczna wyrobu. Pismo. Część 2: Alfabet łańcuchowy, cyfry i znaki.
9. PN-EN ISO 4157-1:2001 Rysunek budowlany. Systemy oznaczeń. Część 1: Budynki i części budynków.
10. PN-EN ISO 4157-2:2001 Rysunek budowlany. Systemy oznaczeń. Część 2: Nazwy i numery pomieszczeń.
11. PN-EN ISO 7519:1999 Rysunek techniczny. Rysunki budowlane. Ogólne zasady przedstawiania na rysunkach zestawieniowych.
12. PN-B-01025:2004 Rysunek budowlany. Oznaczenia graficzne na rysunkach architektoniczno-budowlanych.(Zamiast PN-70/B-01025)
13. PN-EN ISO 128-20:2002 Rysunek techniczny – Zasady ogólne przedstawiania – Część 20: Wymagania podstawowe dotyczące linii. (Zamiast PN-82/N-01616)

14. PN-EN ISO 128-23:2002 Rysunek techniczny – Zasady ogólne przedstawiania – Część 23: Linie na rysunkach budowlanych.
15. PN-ISO 4069:1999 Rysunek budowlany. Oznaczanie powierzchni na przekrojach i widokach. Zasady ogólne.
16. PN-B-01030:2000 Rysunek budowlany. Oznaczenia graficzne materiałów budowlanych. (Łącznie z normą PN-ISO 4069:1999 zamiast PN-70/B-01030)
17. PN-B-01029:2000 Rysunek budowlany. Zasady wymiarowania na rysunkach architektoniczno-budowlanych.(Zamiast PN-60/B-01029)
18. 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)
19. PN-ISO 9431:1994 Rysunek budowlany. Części arkusza rysunkowego przeznaczone na rysunek, tekst i tabliczkę tytułową.
20. PN-ISO 7200:1994 Rysunek techniczny. Tabliczki tytułowe.
21. PN-80/N-01612 Rysunek techniczny. Formaty arkuszy.
22. PN-86/N-01603 Rysunek techniczny. Składanie formatów arkuszy.
23. PN-82 B-02001 Obciążenia Budowli- Obciążenia stale.
24. PN-82/B-02003 Podstawowe obciążenia technologiczne i montażowe.
25. PN-77/B-02011 Obciążenie wiatrem
26. PN-82/B-02004 Obciążenia pojazdami),
27. PN-EN 1991-1-3:2005 Eurocod 1 Oddziaływania na konstrukcje. Część 1-3 Oddziaływania ogólne. Obciążenie śniegiem.
28. Rozporządzenie Ministra Infrastruktury w sprawie szczegółowego zakresu i formy projektu budowlanego tekst ujednoczony (D.U. Nr 228 poz. 1513 z 2008 r.).
- 29.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.).

Supplementary bibliography:

1. PN-EN ISO 3098-3:2002 Dokumentacja techniczna wyrobu. Pismo. Część 3: Alfabet grecki.
2. PN-EN ISO 3098-4:2002 Dokumentacja techniczna wyrobu. Pismo. Część 4: Znaki diakrytyczne i specjalne alfabetu łacińskiego.
3. PN-EN ISO 5455:1998 Rysunek techniczny. Podziałki.
4. PN-ISO 8560:1994 i PN-ISO 8560:1994/Ap1:1999 Rysunek techniczny. Rysunki budowlane. Przedstawianie modularnych wymiarów, linii i siatek.
5. Seria wydawnicza: Słabe miejsca w budynkach tomy 1-6 Arkady
6. Ustawa o planowaniu i zagospodarowaniu przestrzennym - tekst ujednoczony (Dz. U. Nr 153, poz. 901 z 2011 r.).
7. Ustawa Prawo budowlane - tekst jednolity - (Dz.U. Nr 243 poz.1623 z 2010r.).

The student workload

Form of activity	Hours	ECTS
Overall expenditure	86	3
Classes requiring an individual contact with teacher	48	2
Practical classes	38	1

Balance the workload of the average student

Form of activity	Number of hours
participation in lectures	15 h
participation in classes/ laboratory classes (projects)	30 h
preparation for classes/ laboratory classes	13 x 2 h = 26 h
preparation to colloquium	1 x 12 h = 12 h
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:

3 ECTS credits

86 h

As part of this specified student workload

- activities that require direct participation of teachers:

15 h + 30 h + 3 h = **48 h**

1,67 ≈ 2 ECTS credits