# General Informations:

**Curriculum:** Architecture Bsc, Architecture

**Name of Course: Building Construction 4**

**Course Code:** EPE102AN

**Semester:** 4th

**Number of Credits:** 7

**Allotment of Hours per Week:** 4 Practical Lessons and 3 Lectures / Week

**Evaluation:** Examination grade

**Prerequisites: Completed Building Construction 3**

Course director: Dr. Gergely SZTRANYÁK, associate professor

Office: 7624 Magyarország, Pécs, Boszorkány str 2. B-327

E-mail: sztranyak.gergely@mik.pte.hu

Munkahelyi telefon: +36 72 503 650 / 23818

Instructors: Dr. Bálint BARANYAI, assistant professor

Iroda: 7624 Magyarország, Pécs, Boszorkány u. 2. B-327

Dr. Tibor DÁNYI, assistant professor

Iroda: 7624 Magyarország, Pécs, Boszorkány u. 2. B-322

Ali MODAR, assistant, PHD student

Iroda: 7624 Magyarország, Pécs, Boszorkány u. 2. B-327

## General Course Description

During the last two semesters students learned the construction methods of load-bearing wall from the foundation up to the roof structure. During this semester students will learn the constructional solutions of the reinforced concrete skeleton structures and we will get an overwiev of the topics of waterproofing, flooring and separation wall systems.

Neptun: Instruction/Subjects/Subject Details/Basic data/Subject description.

## Learning Outcomes

Neptun: Instruction/Subjects/Subject Details/Syllabus

The aim of the course is that students be able to make construction plan-like solutions based on the previous studies. Students need to work individually.

Neptun: Instruction/Subjects/Subject Details/Syllabus/Goal of Instruction

## Subject content

Lecture: During the semester students learn the construction design methods of using reinforced concrete skeleton structures, flat roofs, waterproofings, and dry walls.

1. Reinforced concretenskeleton structures (structural systems, structural elements, thermal bridges)
2. Constructional design methods of flat roofs (materials, structural details, design methods)
3. Flat roofs – non-walkable
4. Flat roofs – terrace roofs
5. Flat roofs – green roofs, roofs for car parking
6. Design methods of waterproofing in wet functions (materials, structural details, design methods)
7. Constructional design methods of waterproofing in the ground (groundwater)
8. Constructional design methods of waterproofing in the ground (with constantly hydrostatic pressure)
9. Constructional design methods of waterproofing in the ground (with temporary hydrostatic pressure)
10. Constructional design methods of follow-up wall waterproofing
11. Constructional design methods of traditional floors
12. Constructional design methods of dry floors
13. Constructional design methods of dry separation walls

Practice: The topics of the lectures are discussed more detailed during the practical lessons, where students deepen their knowledge through the drawings done together with the teacher. According to these students will be able to make their own drawing tasks alone.

The tasks and requirements are given according to the syllabus. All these information along with the lectures and guidance notes are continuously uploaded to **Microsoft TEAMS.**

**Examination and evaluation system**

*In all cases. Annex 5 of the Statutes of the University of Pécs, the* ***Code of Studies and Examinations (CSE)******of the University of Pécs*** *shall prevail*

[*https://international.pte.hu/sites/international.pte.hu/files/doc/TVSZ%202022\_06\_23\_ENG.pdf*](https://international.pte.hu/sites/international.pte.hu/files/doc/TVSZ%202022_06_23_ENG.pdf)

**Attendance**

In accordance with the Code of Studies and Examinations of the University of Pécs, Article 45 (2) and Annex 9. (Article 3) a student may be refused a grade or qualification in the given full-time course if the number of class absences exceeds 30% of the contact hours stipulated in the course description..

Method for monitoring attendance: attendance sheet

**Assessment**

*Course-unit with final examination (PTE TVSz 40§(3))*

**Mid-term assessments, performance evaluation and their weighting as a pre-requisite for taking the final exam**

|  |  |  |
| --- | --- | --- |
| **Type** | **Assessment** | **Ratio in the final grade** |
| *Written Test 1* | *max 20 points* | *eg: 7,5 %* |
| *Written Test 2* | *max 20 points* | *eg. 7,5 %* |
| *Drawing Task 1* | *max 20 points* | *eg. 5 %* |
| *Drawing Task 2* | *max 20 points* | *eg. 5 %* |
| *Drawing Task 3* | *max 20 points* | *eg. 5 %* |

**Requirements for the end-of-semester signature**

Attending is required for all practical lessons and lectures. Unexcused absences adversely effects the grade, and in case of absence more than 30% of the total number of lessons is a reason for failing the class. To be in class at the beginning time and stay until the scheduled end is required. More than 20 minutes delay is counted as an absence. In case of illness or family emergency students must present a valid excuse, such as a doctor's note.

**During the semester students need to get the signature in order to take part on the exam in the exam period. According to the achieved points of the two periods students can reach their grade.**

In order to get the signature for the course students need to hand in **all drawing tasks** and take part on **both written tests.**

***Re-takes for the end-of-semester signature*** *(PTE TVSz 50§(2))*

*The specific regulations for grade betterment and re-take must be read and applied according to the general Code of Studies and Examinations. E.g.: all the tests and the records to be submitted can be repeated/improved each at least once every semester, and the tests and home assignments can be repeated/improved at least once in the first two weeks of the examination period.*

**Type of examination** (written, oral): drawing and oral parts

The exam is successful if the result is minimum 40 %.

**Calculation of the grade (TVSz 47§ (3))**

The mid-term performance accounts for 50 %, the performance at the exam accounts for 50 % in the calculation of the final grade.

**Calculation of the final grade based on aggregate performance in percentage**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grade: | 5 | 4 | 3 | 2 | 1 |
|  | A, jeles | B, jó | C, közepes | D, elégséges | F, elégtelen |
| Performance in % | 85%-100% | 70%-84% | 55%-69% | 40%-54% | 0-39% |

## Readings and Reference Materials

Required:

[1.] Andrea Deplazes (ED.): Constructing Architecture, Materials, Processes, Structures, BIRKHAUSER

[2.] Franzis D.K. Ching, Barry Onouye, Douglas Zuberbuhler: Building Structures Illustrated, Patterns, Systems and Design, WILEY

[3.] Franzis D.K. Ching: Building Construction Illustrated, WILEY

[4.] Laszló Mihály Perényi, Gergely Sztranyák: Building Construction 4, Lecture Notes, Below grade waterproofing systems and design options, DEPARTMENT OF BUILDING CONSTRUCTION AND ENERGY DESIGN

[5.] Gergely Sztranyák: Building Construction 4, Lecture Notes, Floors, DEPARTMENT OF BUILDING CONSTRUCTION AND ENERGY DESIGN

## Methodology

The course is based on individual architectural skills with regular consultations and presentations.

The practical use of the topics of the lectures are learned during the practical lessons by drawing. According to these students will be able to make their drawing tasks alone.

The course is based on collaborations, participation and discussions during the lessons. This is an interaction between Students and Faculty; used the teaching methods like ‘Problem-based learning’ and ‘learning-by-doing’. The communication and the work in class should be respectful with the other students and their desire to work with regard to noise levels, noxious fumes, etc. from all participants.

The aim of the course is to use individually the correct structural solutions, possibilities and limits by the end of the semester.

The learning process during the semester consists of the following steps:

* consultation – presenting and discussing the work done at home, raising problems, analysing the possible solutions
* according to the consultation working further on the drawing task
* consultation – presenting and discussing the work done at home, raising problems, analysing the possible solutions

## Students with Special Needs

Students with a disability and needs to request special accommodations, please, notify the Deans Office. Proper documentation of disability will be required. All attempts to provide an equal learning environment for all will be made.

*Detailed requirements and schedule of the Course*

**Tasks and minimum requirements**

**Drawing 1** – Plans of the reinforced concrete skeleton structure building (20p)

* floor plans, sections in scale 1:50
* facades in scale 1:100
* details in scale 1:5, 1:10

**Drawing 2** – Plan of the waterproofing system of the top of the building (flat roof) (20p)

* floor plans, section(s) in scale 1:50
* details in scale 1:5, 1:10

**Drawing 3** – Plan of the waterproofing system in the ground and in the building (20p)

* floor plans, section(s) in scale 1:50, 1:20
* details in scale 1:5, 1:10

The drawings must be submitted printed on the given weeks at the beginning of the class. The evaluation takes place during the practice. In the second part of the practice Students can learn their results and ask questions.

If somebody does not submit the drawing in time, can submit or correct the drawings one time on the 16th week.

**Written Tests 1-2**

The written test will take place in the time of the lecture. In order to get the signature Students have to take part on the written test.

On the 16th week only once Students can correct their drawings and the written tests.

**Task Layout Requirements**

The drawing tasks are needed to be done in horizontal A/2 format, on technical drawing sheets.

The layout: frames for all sheets (10 mm from the edge of the paper), descriptions/data in the bottom right corner.

Data in the bottom right corner:

* name of the course
* name of the student, Neptun Code
* name of the drawing task, name of the plan
* scale of the plan
* number of the plan
* date of preparation

The drawings have to submitted in a covering sheet in size A/2 (a folded A/1) name of the course, student name, Neptun Code, name of the degree, date.

The drawing tasks of the semester has to be done by hand (just 2D drawings, see attachement).

**Requirements of the practices**

During the practices consultations or drawing practices are done.

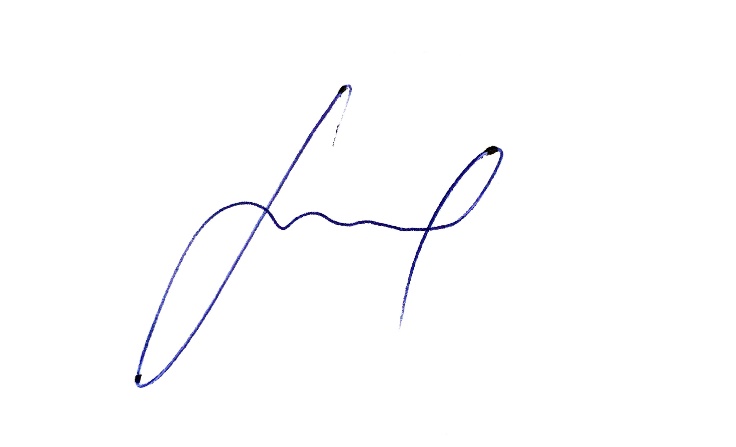
In case of a drawing practice the supervisor draws and explain a structural solution on the blackboard. This drawing is copied by the students to the paper given at the beginning of the lesson. According to the explanation students can understand how to use the theoretical knowledge heard at the lecture. Students can ask the teacher, discussions can be done in connection with topic.

In case of a consultation students can ask in connection with their drawing tasks. They can also listen to others’ consultation. During the whole class students need to be present and deal with their drawing task. Since the drawings can be done digitally, the consultations can be done on computers.

*Schedule*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lecture | | | | |
| week | **Topic** | **Compulsory reading; page number**  **(from … to …)** | **Required tasks (assignments, tests, etc.)** | **Completion date, due date** |
| 1. | Introduction | … | … | … |
| 2. | Reinforced concrete skeleton structures, -history, principles of design, elements, details | Constructing Architecture p 69, p 73-75, p 287-289  Building Structures Illustrated p 40-51, p 162-163, p 97-115, p 207-216  Building Construction Illustrated 3.16, 4.10, 7.50 |  |  |
| 3. | Reinforced concrete skeleton structures, -history, principles of design, elements, details | Constructing Architecture p 69, p 73-75, p 287-289  Building Structures Illustrated p 40-51, p 162-163, p 97-115, p 207-216  Building Construction Illustrated 3.16, 4.10, 7.50 |  |  |
| 4. | Waterproofing of flat roofs – principles of design, terrace roofs, green roofs, non-walkable roofs, roofs for parking | Constructing Architecture p 223-224, p 214-218, p  Building Construction Illustrated: 7.08, 7.05, 6.04 |  |  |
| 5. | Waterproofing of flat roofs – principles of design, terrace roofs, green roofs, non-walkable roofs, roofs for parking | Constructing Architecture p 223-224, p 214-218, p  Building Construction Illustrated: 7.08, 7.05, 6.04 |  |  |
| 6. |  |  | **WRITTEN TEST I.** |  |
| 7. | Heat flow, vapour diffusion, Thermal insulation, Waterproofing of flat roofs | Constructing Architecture p 287-289, p 69 |  |  |
| 8. | Waterproofing in the ground – principles of design, materials | Building Construction 4, Lecture Notes p 1-36 |  |  |
| 9. | SEMESTER BREAK |  |  |  |
| 10. | Waterproofing in the ground – principles of design, materials | Building Construction 4, Lecture Notes p 1-36 |  |  |
| 11. | Waterproofing in wet functions – principles of design, materials | Building Construction 4 - waterproofing, Lecture Notes p 1-36 |  |  |
| 12. | Waterproofing – follow-up wall waterproofing methods | Building Construction 4 - waterproofing, Lecture Notes p 1-36 |  |  |
| 13. | Floor systems / dry walls | Building Construction 4 - floors, Lecture Notes p 1-24 |  |  |
| 14. |  |  | **WRITTEN TEST II.** |  |
| 15. |  |  | **RETAKE I (Written test I)** |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Practice | | | | |
| week | **Topic** | **Compulsory reading; page number**  **(from … to …)** | **Required tasks (assignments, tests, etc.)** | **Completion date, due date** |
| 1. | Site visit: New Market Hall, Pécs |  |  |  |
| 2. | **Drawing practice:** reinforced skeleton structures |  |  |  |
| 3. | Consultation of Drawing 1 |  |  |  |
| 4. | Consultation of Drawing 1 |  |  |  |
| 5. | Presentation of Drawing 1 |  |  | **SUBMISSION Drawing 1** |
| 6. | NATIONAL DAY |  |  |  |
| 7. | **Drawing practice:** terrace roof plan |  |  |  |
| 8. | Consultation of Drawing 2 |  |  |  |
| 9. | SEMESTER BREAK |  |  |  |
| 10. | Consultation of Drawing 2 |  |  |  |
| 11. | Presentation of Drawing 2 |  |  | **SUBMISSION Drawing 2** |
| 12. | **Drawing practice:** waterproofing in the ground |  |  |  |
| 13. | Consultation of Drawing 3 |  |  |  |
| 14. | Consultation of Drawing 3 |  |  |  |
| 15. |  |  | **RETAKE I (Written test II)** | **SUBMISSION Drawing 3** |



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Gergely Sztranyák

Pécs,01.02.2023