# General Informations:

**Curriculum:** Architecture Bsc, Architecture OTM,

**Name of Course: Building Construction 4**

**Course Code:** EPE 102AN

**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](mailto:sztranyak.gergely@pmmik.pte.hu)

Munkahelyi telefon: +36 72 503 650 / 23815

Instructors: Dr Bálint Baranyai, assistant professor

Iroda: 7624 Magyarország, Pécs, Boszorkány u. 2.

E-mail:

Munkahelyi telefon:

Dr Danyi Tibor Zoltan, assistant professor

Iroda: 7624 Magyarország, Pécs, Boszorkány u. 2.

E-mail:

Munkahelyi telefon:

Dr Balázs Kokas, assistant professor

Iroda: 7624 Magyarország, Pécs, Boszorkány u. 2.

E-mail:

Munkahelyi telefon:

Dr Ádám Katona, assistant professor

Iroda: 7624 Magyarország, Pécs, Boszorkány u. 2.

E-mail:

Munkahelyi telefon:

Dr Tamás Pethes, assistant professor

Iroda: 7624 Magyarország, Pécs, Boszorkány u. 2.

E-mail:

Munkahelyi telefon:

Modar Ali, Phd student

Iroda: 7624 Magyarország, Pécs, Boszorkány u. 2.

E-mail:

Munkahelyi telefon:

## 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.

## Learning Outcomes

The aim of the semester is to draw and understand the elements of the architectural construction plans based on the previous studies. Students need to make construction detail drawings individually.

## Subject content

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

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)

**At the end of each practical lesson, students are required to upload the current status of midterm assignments to their own folder (PDF, JPG format) on the subject's Microsoft Office 365 Teams interface. It is the student's duty to create the TEAMS folder at the beginning of the semester in the path specified by the course supervisor. (folder name: NEPTUN code)**

**The completed semester task must be kept by the students after the assessment. After the semester assignments have been evaluated, their final digital version (in PDF format) must be uploaded to the subject's Microsoft Office 365 Teams folder on the 15th week. The uploading of the semester tasks is a condition for obtaining a signature!**

**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..

**Assessment**

**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* | *8 %* |
| *Written Test 2* | *max 20 points* | *8 %* |
| *Drawing Task 1* | *max 20 points* | *8 %* |
| *Drawing Task 2* | *max 20 points* | *8 %* |
| *Drawing Task 3* | *max 20 points* | *8 %* |

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

In order to get the signature for the course students need to hand in **all drawing tasks** and do **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**: In situ drawing and oral

The exam is successful if the result is minimum 50 %.

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

The mid-term performance accounts for 40 %, the performance at the exam accounts for 60 % 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

In order of relevance. (In Neptun ES: Instruction/Subject/Subject details/Syllabus/Literature))

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, Mark Mulville: European Building Construction Illustrated, WILEY

* Lecture notes, guidance notes (download):

<https://drive.google.com/drive/folders/1QueHORvV63G8PDTWj3d7rFD0qkil2U20?usp=sharing>

## 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**

TASK TOPIC MAXIUM POINTS

1st Written Test Topics of the lectures 20 p

2nd Written Test Topics of the lectures 20 p

Drawing 1 Plans of reinforced 20 p

concrete skeleton building

Drawing 2 Plan of the waterproofing system 20 p

of the top of the building

Drawing 3 Plan of the waterproofing system 20 p

in the ground and bathrooms

**TOTAL: 100 POINTS**

*The mid-term performance accounts for 40 % in the calculation of the final grade.*

Drawing Exam Drawing exercises, no aid allowed 50 p

2 x 120 minutes (25 – 25 p, min. 12.5 p from each task)

Oral Exam 30 minutes, no aid allowed, 2 topics 50 p

(25 – 25 p, min. 12.5 p from each topic)

**TOTAL: 100 POINTS**

**MIN.: 50 POINTS**

*The exam performance accounts for 60 % in the calculation of the final grade.*

Topics of the Oral Exam

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

**Drawing 1:**

Using reinforced concrete skeleton structure in the given building.

The level of the garage is the ground floor, there is no basement and no neighboring building.

*Datas (given by the teacher):*

Line types/fillings see in attachement.

*Drawing parts:*

Ground floor plan is also a foundation plan 1:50

Top floor plan 1:50

Sections (A-A, B-B) 1:50

Facade 1:50

Given by the teacher.

Details (4 pieces) 1:5

**Drawing 2:**

Plan of the waterproofing system of the top of the building (flat roof)

*Drawing parts:*

Floor plan 1:50

Sections (A-A, B-B) 1:50

Details (6 pieces) 1:5

**Drawing 3:**

Plan of the waterproofing system in the ground and in the building

*Drawing parts:*

Floor plan 1:50

Sections (A-A, B-B) 1:50

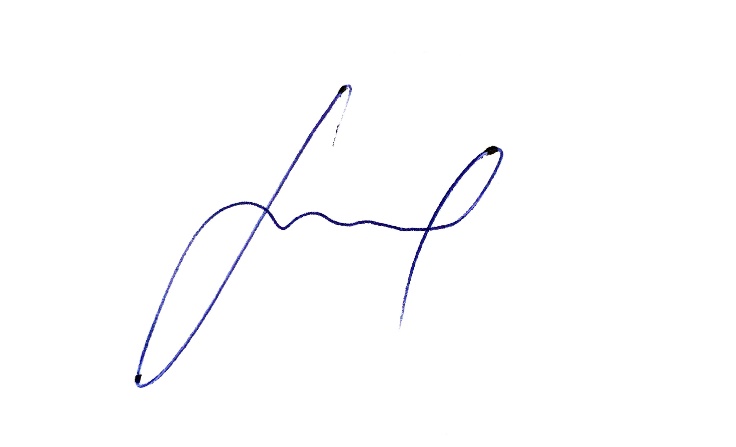
Plan of a bathroom 1:20

Details (6 pieces) 1:5

## Schedule

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lecture | | | | |
| week | **Topic** | **Compulsory reading; page number**  **(from … to …)** | **Required tasks (assignments, tests, etc.)** | **Completion date, due date** |
| 1. | Site visit: New Market Hall  meeting point: Wednesday 9:30 am  Square next to the market hall at the fontain |  |  |  |
| 2. | Reinforced concrete skeleton structures  -history, principles of design, elements, details | Constructing Architecture: p 69, 73-75  Building Structures Illustrated: p 40-51, 97  -101, 102-115, 162-163,  207-216  European Building Construction Illustrated: 3.16-17, 4.10, 7.50-51 |  |  |
| 3. | Reinforced concrete skeleton structures  -history, principles of design, elements, details | Constructing Architecture: p 69, 73-75  Building Structures Illustrated: p 40-51, 97  -101, 102-115, 162-163,  207-216  European Building Construction Illustrated: 3.16-17, 4.10, 7.50-51 |  |  |
| 4. | Heat flow, vapour diffusion  Thermal insulation  Waterproofing of flat roofs | Constructing Architecture: p 144-145, 286-289 |  |  |
| 5. | Waterproofing of flat roofs – principles  of design, terrace roofs, green roofs,  non-walkable roofs, roofs for parking | Constructing Architecture: p 223-224, 214-218,  European Building Construction Illustrated: 6.04, 7.05, 7.18-14 |  |  |
| 6. | Waterproofing of flat roofs – principles  of design, terrace roofs, green roofs,  non-walkable roofs, roofs for parking | Constructing Architecture: p 223-224, 214-218,  European Building Construction Illustrated: 6.04, 7.05, 7.18-14 |  |  |
| 7. | **WRITTEN TEST I.** |  |  |  |
| 8. | Waterproofing in the ground – principles  of design, materials | Lecture notes: Basement waterproofing |  |  |
| 9. | **SUBMISSION II**  **presentation of Drawing 2** |  |  |  |
| 10. | Waterproofing in wet functions  – principles of design, materials | Lecture notes: Basement waterproofing |  |  |
| 11. | Waterproofing – follow-up  wall waterproofing methods | Lecture notes: Basement waterproofing |  |  |
| 12. | Floor systems / dry walls | Knauf Board technical description |  |  |
| 13. | **NATIONAL HOLIDAY** |  |  |  |
| 14. | **WRITTEN TEST II.** |  |  |  |
| 15. | **EXAM PERIOD 1TH WEEK**  **RETAKE OF WRITTEN TEST I - II** |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Practice/Laboratory Practice | | | | |
| week | **Topic** | **Compulsory reading; page number**  **(from … to …)** | **Required tasks (assignments, tests, etc.)** | **Completion date, due date** |
| 1. | Introduction of the syllabus, requirements in the study and exam period |  |  |  |
| 2. | **Drawing practice:**  reinforced skeleton structures |  |  |  |
| 3. | Consultation of Drawing 1 |  |  |  |
| 4. | Consultation of Drawing 1 |  |  |  |
| 5. | **SUBMISSION I**  **presentation of Drawing 1** | Optional: extra consultation of Drawing 1 |  |  |
| 6. | **Drawing practice:**  terrace roof plan |  |  |  |
| 7. | Consultation of Drawing 2 |  |  |  |
| 8. | Consultation of Drawing 2 |  |  |  |
| 9. | **HOLIDAY** | **SUBMISSION II**  **presentation of Drawing 2** in time of the lecture on wednesday |  |  |
| 10. | **Drawing practice:**  waterproofing in the ground |  |  |  |
| 11. | Consultation of Drawing 3 |  |  |  |
| 12. | Consultation of Drawing 3 |  |  |  |
| 13. | **SUBMISSION III**  **presentation of Drawing 3** | Optional: extra consultation of Drawing 3 |  |  |
| 14. | **SUBMISSION I – II - III** |  |  |  |
| 15. | **EXAM PERIOD 1TH WEEK**  **LATE SUBMISSION** | Only for 50 % of the available points (max. 10 p for each drawing task) |  |  |



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Gergely Sztranyak DLA

Pécs, 24.01.2024