# General Informations:

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

**Name of Course: Building Construction 5**

**Course Code:** EPE 105AN

**Semester:** 5th

**Number of Credits:** 7

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

**Evaluation:** examination grade

**Prerequisites: Completed Building Construction 4**

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## General Course Description

During the last three semesters students learned the construction methods of load-bearing wall and reinforced concrete skeleton structures from the base up to the roof structure. After these precast reinforced concrete skeleton structures, transparent building constructions, multi-layered wall and facade structures and suspended ceilings are the current topics.

## 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 and in groups.

## Subject content

During the semester students learn the construction design methods of using precast reinforced concrete skeleton structures, openings, claddings and suspended ceilings.

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)

(Neptunban: Oktatás/Tárgyak/Tárgy adatok/Tárgytematika/Számonkérési és értékelési rendszere rovat)

**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* | *eg:.8 %* |
| *Written Test 2* | *max 20 points* | *eg. 8 %* |
| *Drawing Task 1* | *max 20 points* | *eg. 8 %* |
| *Drawing Task 2* | *max 20 points* | *eg. 8 %* |
| *Drawing Task 3* | *max 20 points* | *eg. 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/1KS3olLuXmp7amY0x8HYYhCh4Dh9LP736?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 floor plans, slab plans, sections, 20 p

 facades and details of the precast

 reinforced concrete skeleton building

Drawing 2 outer and inner openings, 20 p

 shading systems, details

Drawing 3 curtain wall and multi-layered 20 p

 facade plans, details

 **TOTAL: 100 POINTS**

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

Drawing Exam Drawing exercises, no aid allowed

 (min. 3 x 45 minutes)

Oral Exam (15 minutes)

 **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. Precast reinforced concrete skeleton structures (foundation, vertical loadbearing structures, stairs, slabs)
2. Facades of precast reinforced concrete skeleton structures (with precast panels, infill walls, etc.)
3. Precast steel and wood structures
4. Traditional and modern wooden openings
5. Plastic, steel and aluminum openings
6. Internal traditional wooden and steel openings
7. Glazing types (thermal insulated, acoustical, fire resisted, shading, etc.)
8. Curtain walls (transom-mullion systems)
9. Brick cladding (methods, details, building physics analysis)
10. Stone cladding (methods, details, building physics analysis)
11. Fiber cement cladding (methods, details, building physics analysis)
12. Steel cladding (methods, details, building physics analysis)
13. Skylights
14. Suspended ceilings

**Drawing 1:**

Using precast 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):*

Slab: hollowed precast slab

Foundation: pad foundation

Levels: ground floor: 3,60 m 3,90 m

 other floors: 3,30 m 3,60 m

Facade: wall panels

Facedes needed to be drawn: south – west

Line types/fillings see in attachement.

*Drawing parts:*

Ground floor plan is also a foundation plan 1:50

The elements of the foundation are drawn by dashed lines.

The slab panels over the ground floor also need to appear.

Top floor plan 1:50

The slab panels over the top floor also need to appear.

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

Facade 1:50

Given by the teacher.

Details (4 pieces) 1:10, 1:5

**Drawing 2:**

Ground floor plan for the product list of outer and inner openings, product list of outer and inner openings, solving and drawing the details of the given parts of the buildin.

*Drawing parts:*

Ground floor plan for the product

list of outer and inner openings 1:50

Details 1:5, 1:2

(6 pieces)

One outer door, window with shading system and an inner door

**Drawing 3:**

Drawing the facade of the given building in drawing 1 with a curtain wall and a multi-layered facade structure. The two facade types have to touch each other and one of them needs turn over a corner.

*Drawing parts:*

Floor plan of every different level 1:20, 1:25

(until 1 m deep from the level of facade)

Sections 1:20, 1:25

(curtain wall, multi-layered facade)

Facade 1:20, 1:25

Details of the multi-layered facade 1:5, 1:2

(6 pieces)

(plinth, slab, window, window sill/head with shutter, horizontal section, connection to the curtain wall)

Details of the curtain wall 1:5, 1:2

(plinth, slab, connection to an intermediate slab)

## Schedule

|  |
| --- |
| Lecture  |
| week | **Topic** | **Compulsory reading; page number****(from … to …)** | **Required tasks (assignments, tests, etc.)** | **Completion date, due date** |
| 1. | Precast concrete structures | Constructing Architecture: p 70-76Building Structures Illustrated: p 114-115European Building Construction Illustrated: 4.11-13, 5.12-16, 6.05, | … | … |
| 2. | Precast concrete structures | Constructing Architecture: p 70-76Building Structures Illustrated: p 114-115European Building Construction Illustrated: 4.11-13, 5.12-16, 6.05, |  |  |
| 3. | Wood and steel structures | Constructing Architecture: p 96-102European Building Construction Illustrated: 4.14-33, 5.37-50 |  |  |
| 4. | MIK PARTNERS DAY |  |  |  |
| 5. | Openings – wood, plastic, steel | Constructing Architecture: p 184-191, 197-204 European Building Construction Illustrated: 8.02-36 |  |  |
| 6. | Openings – shading systems | Constructing Architecture: p 184-191, 197-204 European Building Construction Illustrated: 8.02-36 |  |  |
| 7. |  |  |  | **WRITTEN TEST I.**  |
| 8. | Brick- stone, concrete suspended façade | Constructing Architecture: p 42, 70-71, 146 |  |  |
| 9. | Fibre-cement, steel suspended façade | Equiton technical description, Prefa technical description |  |  |
| 10. | Curtain walls  | Constructing Architecture: p 172-173, Building Structures Illustrated: p 176-185 |  |  |
| 11. | Suspended ceilings | Knauf Board ceilings technical description |  |  |
| 12. |  |  |  | **WRITTEN TEST II.**  |
| 13. |  |  |  | **WRITTEN TEST** **RETAKE** |

|  |
| --- |
| Practice/Laboratory Practice |
| week | **Topic** | **Compulsory reading; page number****(from … to …)** | **Required tasks (assignments, tests, etc.)** | **Completion date, due date** |
| 1. | **Drawing practice 1** – reinforced skeleton structures | Constructing Architecture: p 70-76Building Structures Illustrated: p 114-115European Building Construction Illustrated: 4.11-13, 5.12-16, 6.05, |  |  |
| 2. | Consultation of Drawing 1 | Constructing Architecture: p 70-76Building Structures Illustrated: p 114-115European Building Construction Illustrated: 4.11-13, 5.12-16, 6.05, |  |  |
| 3. | Consultation of Drawing 1 | Constructing Architecture: p 70-76Building Structures Illustrated: p 114-115European Building Construction Illustrated: 4.11-13, 5.12-16, 6.05, |  |  |
| 4. | MIK PARTNERS DAY |  |  |  |
| 5. | **Drawing practice 2** | Constructing Architecture: p 184-191, 197-204 European Building Construction Illustrated: 8.02-36 |  |  |
| 6. | Consultation of Drawing 2 | Constructing Architecture: p 184-191, 197-204 European Building Construction Illustrated: 8.02-36 |  |  |
| 7. | Consultation of Drawing 2 | Constructing Architecture: p 184-191, 197-204 European Building Construction Illustrated: 8.02-36 |  |  |
| 8. | **Drawing practice 3** | Constructing Architecture: p 42, 70-71, 146,Equiton technical description, Prefa technical description |  |  |
| 9. | Consultation of Drawing 3 | Constructing Architecture: p 42, 70-71, 146,Equiton technical description, Prefa technical description |  |  |
| 10. | Consultation of Drawing 3 | Constructing Architecture: p 42, 70-71, 146,Equiton technical description, Prefa technical description |  |  |
| 11. | Consultation of Drawing 3 | Constructing Architecture: p 42, 70-71, 146,Equiton technical description, Prefa technical description |  |  |
| 12. | Evaulation in groups |  |  | **Submission** |
| 13. | Evaulation |  |  | **Late submission** |



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 Gergely Sztranyak DLA

Pécs, 30.08.2023