# General Information:

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

Name of Course: Building Constructions 6

Course Code: EPE317AN

Semester: 6th

Number of Credits: 7

Allotment of Hours per Week: 2 Lectures and 4 Practical Lessons /Week

Evaluation: Signature and exam

Prerequisites: Completed Building Constructions 5.

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## General Subject Description

This subject intends to teach the following topics: requirements of building constructions; industrial halls wide- span structures; methods of spatial construction, design principles of the load bearing elements, walls, pre-fabricated wall structures, partition walls; windows and openings. Beside the basic knowledge, the target of the course is to learn the advanced engineering thinking. A substantial goal is to provide students with ample tools and an understanding of appropriate technologies in the field of widespan structures.

## Learning Outcomes

This course provides a sound basis for students to improve their construction and structural design skills, through both the theory based lectures and through the practical element of the course, where students are introduced to the construction process of a widespan structures. This subject includes architectural design projects in the practical part where students can practice and further develop the content of the lectures

The course will focus on:

* Individual design processing, and developing upon relevant methodologies and design techniques
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* Carrying out within a specified time

## Subject content

The Building Constructions 6 course includes the following parts:

* reinforced concrete frame halls
* steel frame halls
* laminated timber structures
* space frames
* cable structures
* Regular (weekly) supervisions by an appointed Main Supervisor.
* Drawing Tasks (selected number A/3 pages) prepared with architectural drawings and documentation
	1. Drawings of the reinforced concrete hall (floor plan, sections 1:50)
	2. Drawings of the steel frame hall (floor plan, section 1:50)
	3. Drawings of the laminated timber hall (floor plan, section 1:50)
	4. Drawings of the space frame (floor plans, sections, elevations 1:50)
* Case study presentation (not obligatory task)
* Written test

**Case study presentation**

Presentation of the case study project in front of the class. The presentation time limit is 10 minutes

## 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://english.mik.pte.hu/codes-and-regulations*

Attending is required all classes, and will impact the grade. Unexcused absences will adversely affect the grade, and in case of absence from more than 30% of the total number of lesson (it is max. 4 lesson) will be grounds for failing the class. To be in class at the beginning time and stay until the scheduled end of the lesson is required, tardiness of more than 20 minutes will be counted as an absence. In the case of an illness or family emergency, the student must present a valid excuse, such as a doctor's note.

At the time of the practice lessons (LAB), all drawing assignments must be presented in the class each week, otherwise the class will be counted as absence. **A drawing task can be accepted and evaluated if at least 50% of all parts of the drawing task is completed.**

**Studio Culture:**

The course is based on through collaboration, participation and discussions trough lessons. This is an interaction between Students and Faculty; used the teaching methods like ‘Problem-based learning’ and ‘learning-by-doing’. The communication and work should be reflect a respect for fellow students and their desire to work with regard to noise levels, noxious fumes, etc – from each site of participants.

**Mid-term assessments, performance evaluation and their ratio in the final grade**

|  |  |  |
| --- | --- | --- |
| **Type** | **Assessment** | **Ratio in the final grade** |
| *1st. reinforced concrete hall* | *max 15p. min.6p.* | *4,5%* |
| *2nd. steel frame hall* | *max 15p. min.6p.* | *4,5%* |
| *3rd. laminated timber hall* | *max 15p. min.6p.* | *4,5%* |
| *4th. space frame hall* | *max 15p. min.6p.* | *4,5%* |
|  |  |  |
| *case study presentation (not obligatory)* | *max 10p.*  |  |
| *Final written test* | *max 40p. min.16p.* | *12%* |

**If the score of any mid-term assessments does not reach the minimum value, it must be improved!**

**Opportunity and procedure for re-takes**

The specific regulations for improving grades and resitting tests, must be read and applied according to the general Code of Studies and Examinations. E.g.: all tests and assessment tasks can be repeated/improved once every semester, and the tests and home assignments can be repeated/improved once in the first two weeks of the examination period.

**Those who do not present the task at the deadline could present the task on the next educational week. Missed assignments could resubmitted once in the first week of the examination period, at a time announced by the Instructors.**

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

* Attendance of the classes according to the CSE.
* Successful submission of the drawing tasks.
* Submission of the semester drawing until the deadline.
* Passing the final written test

**Offered exam grade:**

Offered exam grade can be given by the responsible lecturer

**Requirements for the offered exam grade**

* at least 75 point with the semester assignments
* completing the mid-semester assignments by the deadline
* completed all the drawing tasks with at least 50%,
* completed final written test with at least 50%,

 4 (good) 75-89 points

 5 (excelent) 90-100 points

**Examination**

|  |  |  |
| --- | --- | --- |
| **Type** | **Assessment** | **Ratio in the final grade** |
| Oral exam: two questions about the topics of semester | 100 pt (min. 40 pt) | 70 % |

**Calculation of the final grade (CSE 47§ (3))**

Mid-term performance accounts for 30 %, the performance at the exam accounts for70 %.

**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%-55% | 0-39% |

## Readings and Reference Materials

**Required:**

#### Heino Engel (2007) Tragsysteme Structure System

#### Hegyi/Gáspár/ Fehér (2022) Special Loadberaing Structures

#### Andrea Deplazes, (2008) Constructing Architecture:

### [Francis DK Ching (2014) Building Structures Illustrated](https://www.perlego.com/book/993205/building-structures-illustrated-patterns-systems-and-design-pdf)

**More:**

1. <https://www.kingspan.com/>
2. <http://www.lindab.com/>

## Methodology

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

# Detailed requirements and schedule of the Course

|  |
| --- |
| Lectures |
| week | **Topic** | **Reference readings**  | **Task** | **Deadline** |
| 1. | Description of the semester study programIntroduction |  | … | … |
| 2. | Structures of reinforced concrete framed halls | [3.] 56.-73. |  |  |
| 3. | Foundations and flooring  | [3.]. |  |  |
| 4. | Details of R.F. concrete halls | [3.]  |  |  |
| 5. | Structures of steel framed halls | [2.]  |  |  |
| 6. | Roof and wall structures | [5.]  |  |  |
| 7. | Details of steel frame halls  | [5.]  |  |  |
| 8. | Timber frame halls and details | [4.] |  |  |
| 9. | **Holiday week** |  |  |  |
| 10. | Structural systems  | [1.] 40-56 |  |  |
| 11. | Space frames and details | [2.] 257-283 |  |  |
| 12. | Cable structures | [2.] 191-207 |  |  |
| 13. | Folded Plates | [2.] 31-36 |  |  |
| 14. | Grid shells | [2.] 279 |  |  |
| 15. | **Final written test** |  | **written test** | 15. week, Lecture time |

|  |
| --- |
| Labs |
| week | **Topic** | **Reference readings**  | **Task** | **Deadline** |
| 1. |  Description of the semester study programIntroduction |  |  |  |
| 2. | **1st. drawing:**concrete frame hall |  | **Drawing Board practice:** concrete frame |  |
| 3. | Consultation. |  |  |  |
| 4. | Consultation. |  | **1st. drawing presentation**  | 4. week, end of the LAB |
| 5. | **2nd. drawing:**steel frame hall |  | **Drawing Board practice:** steel frame **1st. drawing resubmission** |  |
| 6. | Consultation |  |  |  |
| 7. | Consultation |  | **2st. drawing presentation** | 7. week, end of the LAB |
| 8. | **3rd.drawing:** laminated timber hall |  | **2nd. drawing resubmission** | 8. week, end of the LAB |
| 9. | **Holiday week** |  | individual work |  |
| 10. | Consultation |  |  |  |
| 11. | Consultation. |  | **3rd. drawing presentation** | 11. week, end of the LAB |
| 12. | **4th.drawing:** space frame hall |  | **Drawing Board practice:** space frame **3rd.drawing resubmission** | 12. week, end of the LAB |
| 13. | Consultation. |  |  |  |
| 14. | Consultation. |  | **4th.drawing presentation** | 14. week, end of the LAB |
| 15. | **Case study presentation** |  | **Case study presentation****4th.drawing resubmission.**  | 15. week, end of the LAB |

We reserve the right to make changes to the details of this course syllabus (date / location / clarifications), which will be communicated to the students. In case of questions and problems that arise during the semester contact the responsible lecturer or the study program coordinator.

Pécs, 28.01.2023

Miklós HALADA dr.

responsible lecturer