# *General Information:*

**Curriculum:** Architecture Bsc, Architecture OTM

**Name of Course: Building Constructions 3**

**Course Code:** EPE099AN

**Semester:** 3th

**Number of Credits:** 7

**Allotment of Hours per Week:** 15 Practical Lessons /Week

**Evaluation:** Signature and Exam

**Prerequisites: Completed Building Constructions 2**

**Responsible lecturer**:  **Dr Miklós Halada, associate professor**

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## General Subject Description

The primary intention of this subject is to teach students the following theoretical topics: drawing representation of slab, roof structures, wooden roof structures and joinery, Chevron roof structures, vacant and collar beam roof structures, purlin roof structures, roof structures with one, two and multiple support members, roof structure with slanted support members, purlin roofs with struts, mansard roof structures, hipped roof structures, carpenter joints, suspended roof structures.

Slab structures. Roofing, imbricate roof structures, tough roofing systems, tile roofing, concrete roof tiles, slate roofs, wooden and thatched roofs, boarded roofs, flashing and guttering, breakthroughs in roofing, metal plates, chimneys and gravitational ventilation. The topics listed above serve as a basic theoretical knowledge for students and are complimented by practical sessions where students work through the design of a residential building. This subject includes an architectural design project in the practical part (marked with a P) where students can practice and further develop the content of the lectures (marked with an L).

## 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 residential building. 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 2 course includes:

* Regular (weekly) supervisions by an appointed Main Supervisor.
* Drawing Tasks (selected number A/2 pages) prepared with architectural working drawings documentation (plans, sections, elevations 1:50) and with a sufficient number of detail drawings (1:10)
	+ Roof shape drawing 1:200 – 1:100 (floor plan and 2 side views)
	+ Slab plan 1:50, 1:10 (floor plan, 2section, 3 details)
	+ Working drawings of the 2 storey detached house 1:50, 1:10 (2 floor plans, 2 sections, 3 details)
	+ Roof plan (floor plan, 2 sections, 3 details)
* Mid-semester design practice
	+ Slab plan design
	+ Roof plan design

## 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.

## Assessment

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

|  |  |  |
| --- | --- | --- |
| **Type** | **Assessment** | **Ratio in the final grade** |
| 1.Roof shape drawing | *max 5 points* | *2,5 %* |
| 2. Working drawing of the 2 story detached house | *max 25points* | *12,5 %* |
| 3. Slab plan: | *max 15 points* | *7,5 %* |
| 4. Roof plan:  | *max 15 points* | *7,5 %* |
| Written test | *max 40 points* | *20%* |

**A drawing task can be accepted and evaluated if at least 50% of all parts of the drawing task have been completed.**

**Opportunity and procedure for re-takes (PTE CSE 47§(4))**

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 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.

**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 mid-semester drawing test
* Passing the final written test
* The uploading of the evaluated drawing tasks (PDF) to the subject's Microsoft Office 365 Teams folder

**Re-takes for the end-of-semester signature** (PTE CSE 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.*

## Exam:

|  |  |  |
| --- | --- | --- |
| **Type** | **Assessment** | **Ratio in the final grade** |
| Oral exam | *max 100 points* | *50 %* |

**EXAM questions:**

1. Determination of the roof shape
2. Range of the roof structures according span
3. Hipped roof structures
4. Complex roof structures
5. King post and Queen post roofs
6. Engineering roof structures and timber joints
7. Attic floor with traditional roof structures
8. Attic floor solutions with reinforced concrete. Coffin slabs.
9. Timber slabs and masonry vaults
10. Steel beam slabs with jack-arch flooring
11. Monolithic reinforced concrete slabs and ring beams
12. Prefabricated slabs
13. Types of the roof tiles
14. Roof detail with double and single cover (plain tile)
15. Metal roof claddings
16. Roof coverings with natural materials
17. Details of the eave gutter
18. Roof flashing details ( valley, wall connections, verge wall)

**Calculation of the grade (CSE 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, Outstanding | B, High | C, Satisfactory | D, Less than Satisfactory | F, Unsatisfactory |
| Performance in % | 85%-100% | 70%-84% | 55%-69% | 40%-54% | 0-39% |

## Offered exam grade

The course supervisor has the right to offer an exam mark based on mid-semester performance, which - if the student accepts it by the end of the exam period - will be recorded in the Neptun system.

If the student do not accept the offered grade, the student must take the exam, otherwise the subject will not be completed!

Requirements for the offered grade:

 - mid-term performance of at least 75%, - completed the mid-term assignments,

- authorized for signature,

- submission of all the drawing tasks and reaching at least 75% of points,

- submission of all the drawing tasks up to the deadline, according semester schedule

- completed written test with at least 75%of points,

4 (high quality work) 75-89 points

5 (outstanding work) 90-100 points

## Readings and Reference Materials

**Required:**

# [1.] [Eberhard Schunk](http://www.amazon.co.uk/s/ref%3Ddp_byline_sr_book_1?ie=UTF8&text=Eberhard+Schunk&search-alias=books-uk&field-author=Eberhard+Schunk&sort=relevancerank) (2003) Roof Construction Manual,

<http://www.amazon.com/Roof-Construction-Manual-English-Edition/dp/3764369868>

# [2.] Francis D. K. Ching Wiley (2014) Building Construction Illustrated- 5th edition

**More:**

# [3.] [Julius Panero, Martin Zelnick (1979) Human Dimension and Interior Space: A Source Book of Design [1.] [4.] Reference Standards ISBN 0823072711. Watson-Guptill](http://joom.ag/WYhb)

# [5.] [E.Neufert, P. Neufert (2002). Neufert Architects' Data](http://joom.ag/0Lhb)

# [6.] Julia McMorrough (2014). Drawing for Architects: How to Explore Concepts, Define Elements, and Create [7.] Effective Built Design through Illustration

## Methodology

The subject is based on the theoretical knowledge and practical application of the building structure solutions learned during the semester. The requirements for the completion of the semester is the successful completion of the written test from the theoretical part and the appropriate completion of the drawing tasks. The aim of the semester is for the student to be able to independently apply the structural solutions learned during the semester, to understand the possibilities and limitations of the building structure.

- joint discussion - presentation and discussion of the work prepared at home, discussion of the problems, analyzing possible solutions to the identified problems

- independent development of the tasks

## 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**

## The mid semester drawing assignments must be submitted on a A/2 drawing sheets.

## Each drawing sheet is framed (5 mm from the edge of the sheet), with a drawing stamp in the lower right corner.

## The drawing assignments must be submitted at the time of the labs.

## The drawing tasks could be done by pencil

## **Contents of drawing stamp:**

## • Subject name

## • Student Name, Neptun code

## • Name of the drawing

## • Scale of the drawing

## • Serial number of the drawing

## • Date of submission

## **Assignments content**

## 1. Roof shape drawing: floor plans +2 pcs. side view on A/2 drawing base 1:200-1:100

## 2. Detached house: 2 floor plan, 2 sections, 2 facades 1:50, 3 details 1:10

## 3. Slab plan: floor plan, 2 slab section 1:50, 3 pcs. details 1:10

## 4. Roof plan: floor plan, 2 sections 1:50, 3 details 1:10

**After successful submission the mid semester drawings must be scanned and uploaded to the TEAMS folder!**

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. Students must be in class at the beginning of class 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.

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.

## Schedule

|  |
| --- |
| Lecture  |
| week | **Topic** | **Compulsory reading; page number** | **Required tasks (assignments, tests, etc.)** | **Completion date, due date** |
| 1. | Determining of roof shapes | [**1**.] 11-42 | … | … |
| 2. | Conventional slab structures | [**2**.] 140-142 |  |  |
| 3. | Slab structures, precast slabs | [**2**.] 113-115 |  |  |
| 4. | Conventional roof structures. | [**1**.] 44-61 [**2**.] 196-197 |  |  |
| 5. | Hipped roofs | [**1**.] 62-69 |  |  |
| 6. | Complex roof structures | [**2**.] 210-224 |  |  |
| 7. | King-post roof structures | lecture material |  |  |
| 8. | Engineering roof structures. Loft structures | [**1**.] 228-246 |  |  |
| 9. | Roof covers, Ceramic roof tiles | [**1**.] 149-158 |  |  |
| 10. | Roof gutter and drainage system | [**1**.] 250-255 |  |  |
| 11. | Roofing details | [**1**.] 256-334 |  |  |
| 12. | Slate roof covers and metal claddings | [**1**.] 108-131 |  |  |
| 13. | Traditional roof covers. | [**1**.] 108-131 |  |  |
| 14. | WRITTEN TEST |  | WRITTEN TEST |  |
| 15. | WRITTEN TEST RETAKE |  | WRITTEN TEST RETAKE |  |

|  |
| --- |
| Practice/Laboratory Practice |
| week | **Topic** | **Compulsory reading; page number** | **Required tasks (assignments, tests, etc.)** | **Completion date, due date** |
| 1. | 1st. drawing task: Roof shape drawing  |  | Drawing board practice: Roof Shape |  |
| 2. | 1st. drawing Consultation2nd. drawing task: Detached house3rd. drawing task: Slab plan |  |  |  |
| 3. | 2nd. drawingConsultation |  | 1st. drawing presentation  |  |
| 4. | Consultation |  | Drawing board practice: Slab Plan 1st. drawing resubmission |  |
| 5. | 4th darwing task: Roof structure drawing Consultation |  | Drawing board practice: Hipped roof |  |
| 6. | Consultation |  |  |  |
| 7. | drawing presentation |  | **3rd.drawing presentation** |  |
| 8. | Consultation |  | 3rd.drawing resubmission |  |
| 9. | Consultation |  |  |  |
| 10. | drawing presentation |  | **4th.drawing presentation** |  |
| 11. | Consultation |  | 4th.drawing resubmission |  |
| 12. | Consultation |  |  |  |
| 13. | Consultation |  |  |  |
| 14. | drawing presentation |  | 2nd.drawing presentation |  |
| 15. |  |  | 2nd. drawing resubmission |  |

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.

 dr. Miklós Halada

Pécs,19.08.2024 course director