Building Construction

Code: MK3MAG3S8SS17-EN

ECTS Credit Points: 8 credits

Evaluation: mid-semester grade

Year, Semester: 3rd year, 5th semester

Its prerequisite(s): Introduction to Building Construction

Further courses are built on it: Yes

Number of teaching hours/week (lecture + practice): 2+4

Topics:

Load bearing structures (walls, frames, floors, stairs and foundation). Wall-type buildings. Load bearing and space-limiting walls. Lintel, ring-beam. Homogeneous and mixed walls. Systems of construction and building (panels and cast wall construction, frames of reinforced concrete, steel and wood, dry-tech construction, ready-made building). Monolithic RC walls. Partitions. Horizontal load-bearing structures. Dense-rib, floor block, hollow ceramic block, self-formworking floors. Comparative evaluation of alternatives. Design principles and rules of floor systems. Balconies. Structures and roofing of pitched roof, built-in roof space. Structural variants of wooden roof trusses. Transitional and engineered roof trusses. Steel and RC pitched roof structures. Roof cladding. Soft sheet and plate covers. Metal structures of roof covers. Variants of sheetmetal covers. Energy balance of buildings: components, geometric ratio and groundplan arrangement of buildings, natural ventilation, energetic requirements, specific heat demand, procedure of energetic design and checking.

External - independent and built-together - stairs. Structural alternatives of internal stairs. Stone steps. Prefabricated RC, steel and wooden stairs. Accessories of stairs. Foundation and subsoil insulation. Building constructional considerations in selecting foundation mode. Subs, protecting and supporting structures for insulations. Insulating variants for different effects and requirements (coating, felt, expanding and mass insulations). Flat roofs. Main functional and additional layers. Sub, protection against wind suction. Draining vapour pressure. Plastic and coating-like waterproofings. Utilized flat roofs. Roof terraces with conventional and elastically bedded finishes. Variants of green roofs, functional layers. Waterproofing against functional waters.

In seminar there are six tasks to elaborate: 3 homework drawings and 3 workshop drawings.

Literature:

Compulsory:

- AMBROSE, James E.: Building structures, ISBN 0471540609 Wiley, New York 1993.
- BÖHÖNYEY, J.: Building construction encyclopedia. Iparterv, Budapest 1986.

Schedule

1st week Registration week	
2nd week: **Lecture:** Wall-type buildings **Practice:** issuing the task 1 (homework drawing). Elaborating the workshop drawing 1.	**3rd week:** **Lecture:** Horizontal load-bearing structures **Practice:** consultation of task 1 (homework drawing)
4th week: **Lecture:** Pitched roof **Practice:** consultation of task 1 (homework drawing)	**5th week:** **Lecture:** Roof cladding **Practice:** consultation of task 1 (homework drawing)
6th week: **Lecture:** Passive houses	**7th week:** **Lecture: Mid-term test**

Practice: submitting the task 1 (homework drawing). Elaborating the workshop drawing 2.	**Practice**: Issuing the task 2 (homework drawing). Elaborating the workshop drawing 3.
8th week: 1st drawing week	
9th week: **Lecture:** Stairs **Practice:** consultation of task 2 (homework drawing)	**10th week:** **Lecture:** Foundation and subsoil insulation **Practice**: consultation of task 2 (homework drawing)
11th week: **Lecture:** Flat roofs **Practice:** submitting the task 2 (homework drawing). Issuing task 3 (homework drawing).	**12th week:** **Lecture:** Waterproofing against functional waters. **Practice:** consultation of task 3 (homework drawing)
13th week: **Lecture:** Building visit **Practice:** consultation of task 3 (homework drawing)	**14th week:** **End-term test** Submitting task 3 (homework drawing).
15th week: 2nd drawing week	

Requirements

A, for a signature:

Attendance at lectures is recommended, but not compulsory.

Participation at practice is compulsory. Students must attend practice classes and may not miss more than three practice classes during the semester. In case a student does so, the subject will not be signed and the student must repeat the course. Students can't make up a practice with another group. Attendance at practice will be recorded by the practice leader. Being late is counted as an absence. In case of further absences, a medical certificate needs to be presented. Missed practices should be made up for at a later date, to be discussed with the tutor. Students are required to bring the drawing tasks and drawing instruments for the course with them to each practice class. Active participation is evaluated by the teacher in every class. If a student's behaviour or conduct doesn't meet the requirements of active participation, the teacher may evaluate his/her participation as an absence due to the lack of active participation in class.

Students have to submit all the six drawing tasks as scheduled minimum at a sufficient level.

During the semester there are two tests: the mid-term test in the 7th week and the end-term test in the 14th week. Students have to sit for the tests.

B, for a grade:

The course ends in a mid-semester grade. Based on the average of the marks of the drawings and the average of the test results, the mid-semester grade is calculated as an average of them:

- average grade of the six drawing tasks
- average grade of the two tests

The minimum requirement for the mid-term and end-term tests is 60%. Based on the score of the tests separately, the grade for the tests is given according to the following table:

Score	Grade
0-59	fail (1)
60-69	pass (2)
70-79	satisfactory (3)
80-89	good (4)
90-100	excellent (5)

If the score of any test is below 60, the student once can take a retake test covering the whole semester material.