

Marmara University, Faculty of Architecture and Design
School of Architecture
2025-2026 Fall Semester

Course Title	Code	Semester	Hour (T+P)	Credit	ECTS
Building and Construction Technologies	ARCH 2009	Fall (3rd semester)	2+2		5
Prerequisites	-				
Language of Instruction	English				
Course Type (Required / elective)	Required				
Course Coordinator	-				
Instructor /e-mail	Assist. Prof. Dr. H. Nur KIZILYAPRAK / nur.kizilyaprak@marmara.edu.tr				
Assistant(s)	Res. Assist. Elif DEMIRCI				
Goals	The aim is to enable the student to understand the building elements and components within the framework of the systems approach by analyzing them from a holistic perspective and to create a basis for designing based on construction methods within the building system.				
Learning Outcomes	▪ To have knowledge about the design principles of functional building elements such as wall, floor, and roof. ▪ To have knowledge about the construction methods of functional building elements. ▪ To have basic knowledge to use the theoretical and practical knowledge acquired in the design of structural element systems. ▪ To develop research skills related to the collection, processing and utilization of information. ▪ To develop the ability of the student to express building element systems on different scales.				
Course Content	▪ Concepts of building, architectural technology and construction technology. Introducing building and construction methods with systems approach. Explaining Building-User-Environment interaction, and in this framework introducing environmental factors & performance characteristics expected from the building. Design principles of building element systems. ▪ Analysis of building elements as building sub-systems; flooring systems (ground floor, mid-storey floor, under-open floor, etc.), vertical circulation systems (ramps, stairs, etc.), exterior wall systems (walls related to atmosphere and soil), joinery systems, roof systems, interior partition systems (fixed and movable interior walls, suspended ceilings, raised floors). ▪ Company practices (observation and detection): Construction phases of building elements. ▪ Studio drawings: Expression of building element systems with different techniques (sketch, technical drawing, etc.)				
Assessment Criteria	Assessment Components				
	Midterm Evaluation Components: • Assignments (3 piece) - %10 • Application Report with Studio Sketches (1 piece) - %10 (%5 + %5) • Midterm Exam (1 piece) - %20				% 40
	Final Evaluation Components: • Studio Works (# 4 and 6) (2 pieces) - %10 • Application Reports with Studio Sketches (3 piece) - % 30 • Final Exam (1 piece) - %20				% 60
	TOTAL				% 100
	Midterm exam success grade: - Final exam success grade: 50 Course success grade: 50				

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Weekly Topics and Preparations

Weeks	Topics	Submission Dates of Assignments, Reports, Sketches
Week 1 26.09.2025	Theoretical Course: Introduction, Concepts/Approaches	
Week 2 03.10.2025	Theoretical Course: Floor systems (FS)	
Week 3 10.10.2025	Theoretical Course: Floor systems (FS) Assignment 1: Systematical analysis of a floor system from literature (Report and 3D model making) • Slab-on-grade • Heated intermediate floor • Projecting floor • Open floor from above	
Week 4 17.10.2025	Theoretical Course: Vertical Circulation systems (VCS) Assignment 2: Design of a stair system (calculation, form decision and plan sketch)	Submission of Assignment 1 (FS)
Week 5 24.10.2025	Theoretical Course: Exterior Wall Systems (EWS)	Submission of Assignment 2 (VCS)
Week 6 31.10.2025	Company Application 1 (EWS) Firm: YTONG Studio Work 1: EWS sketches	Submission of EWS sketches
Week 7 7.11.2025	Theoretical Course: Joinery systems (JS) Assignment 3: Analysis of windows and door systems from literature	Submission of EWS report
Week 8 10-16.11.2025	Midterm Exam -	
Week 9 21.11.2025	Company Application 2 (Exterior Wall Cladding: EWC) Firm: WEBER Studio Work 2: EWC sketches	Submission of Assignment 3 (JS) Submission of EWC sketches
Week 10 28.11.2025	Company Application 3 (Curtain Wall Systems: CWS) + Firm: SCHÜCO Studio Work 3: CWS sketches	Submission of EWC report Submission of CWS sketches
Week 11 05.12.2025	Theoretical Course: Roof Systems (RS)	Submission of CWS report
Week 12 12.12.2025	Theoretical Course: Roof Systems (RS) ⁹ Company Application 4 (RS) Firm: MEGARON	Submission of RS sketches
Week 13 19.12.2025	Studio Work 4: RS 3D Model and Drawings (for a given roof system)	Submission of RS report
Week 14 26.12.2025	Theoretical Course: Internal Partition Systems (IPS)	Submission of RS detail drawings
Week 15 02.01.2026	Company Application 5 (IPS) + Firm: ... (not clear yet) Studio Work 5: IPS sketches	Submission of IPS sketches
Week 16 09.01.2026	Studio Work 6: IPS 3D Model and Drawings	
12-25.01.2026	Final Exam	

26.01-08.02. 2026	Resit Exam	
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Course Method

Company Applications

Company applications are carried out in order to recognize the materials and components of different building element systems and to understand the construction stages. After the application followed as a group; it is expected to identify the materials and components used, explain the observed construction process (number of workers, application time, construction stages, etc.) and express it (with techniques such as photography, video, note taking, etc.). The data obtained should be presented in the form of a report in the first class after the application. In the report presentation, student number, name-surname, course name and code, report date, subject, report number, source information, if any, etc. should be included on the assignment cover.

Sketches in the Studio

Following the company applications, the practice in the studio will involve freehand expression of the observed construction method. A3 sketch papers will be used for drawings. For this reason, A3 paper and drawing tools should be brought to each studio practice. The scale and subject of the drawing will be informed by the lecturers prior to the drawing in line with the practice to be followed.

Assignments

There will be three assignments during the semester. In the homework assignments, it is expected to analyze a sample selected from Detail magazines related to the building element system (floor, staircase and joinery system) to be examined, based on the material/component/system properties and functional performance requirements described in the course. The magazine information (issue, publication date, etc.) of the selected example should be specified in all of the studies.

REFERENCES

English References:

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- Blanc, A., Blanc, S., *"Stairs"*, Architecture Press, Oxford, 2001.
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- Charlet, A., J., *"Fundamental Building Technology"*, Taylor&Francis Group, 2007.
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ECTS / WORKING HOUR TABLE			
Activities	Süre (Hafta)	Süre (Saat)	Çalışma Saati
Duration of the Course	14	4	56
Extracurricular Working Hour (Preparatory Work, Review)	14	1	28
Assignments, Studio works	13	4	52
Midterm Exam	1	4	4
Final Exam	1	4	4
Working Hours in Total			144
Working Hours in Total / 30			4,8
ECTS Credit of the Course			5