Marmara University, Faculty of Architecture and Design
School of Architecture
2023-2024 Fall Semester

Course Title	**Code**	**Semester**	**Hour (T+P)**	**Credit**	**ECTS**
Material and Technology I	ARCH 205	4 (Fall)	2+2	3	4
Prerequisities	-				
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				
Assistans	Research Assistant Rumeysa Temel				

Goals	The aim is to provide a holistic perspective to students and enable them to gain **awareness** of these concepts by approaching the structure, construction, and building subsystems at a **conceptual** level.
Learning Outcomes	Becoming aware of the concepts of structure and construction. Becoming aware of the building subsystems. Becoming aware of the structural element systems.
Course Content	Introducing the construction, material, architectural technology, and construction technology; and Introducing the construction and building technologies through a systems approach. To establish the relationship between the user-environment-structure and the performance criteria expected from the structure in this context. Introducing the traditional and advanced structure and construction systems building sub-systems (building element systems, construction systems, service systems). Introducing the building element as individual systems with examples. Supporting the course with homework and applications that use methods such as literature analysis, models, photographs, drawings, etc.

	Assessment Components	
Assessment Criteria	Midterm Evaluation Components Studio Works (2 pieces)-%20 Midterm(1 piece)-%20	% 40
	Final Evaluation Components Studio Works (2 pieces) -%20 Assignments (5 pieces) - %20 Final Exam (1 piece)- %20	% 60
	TOTAL	% 100

Midterm exam success grade: -
Final exam success grade: 50
Course success grade:50

Weekly Topics and Preparations		
Weeks	**Topics**	**Assignments**
Week 1 04.10.2023	Introduction, concepts	
Week 2 11.10.2023	**Theoretical Course:** Relation between user, environment, building	
Week 3 18.10.2023	**Theoretical Course:** Building / Building Systems	
Week 4 25.10.2023	**Theoretical Course:** Foundations	
Week 5 01.11.2023	**Studio work 1:** The plan and sections of a foundation for masonry system	**Studio work 1:** 1/50 _The drawing of the foundation plan and sections of tne Masonry building (The detail of studio work at page 4)
Week 6 08.11.2023	**Studio work 2:** The plan and sections of a foundation for frame system	**Studio work 2:** 1/50 _The drawing of the foundation plan and sections of the frame structure (The detail of studio work at page 4)
Week 7 15.11.2023	**Theoretical Course:** The floor systems	**Assignment 1:** 1/20 scale sectional physcial model of the flooring system (wood or steel). (For assignment details, see page 3)
Week 8 20.11.2023 - 26.11.2023	**Midterm Exam** -	
Week 9 29.11.2023	**Theoretical Course:** The vertical circulation systems	**Assignment 2:** Examination of the components of an existing staircase system. (For assignment details, see page 3)
Week 10 06.12.2023	**Theoretical Course:** The walls systems	**The Submission of Assignment 2** **Assignment 3:** Examination of the components of a wall system example. (For assignment details, see page 3)
Week 11 13.12.2023	**Theoretical Course:** The window and door systems	**The Submission of Assignment 3** **Assignment 4:** Examination of the components of a window or door system from a photograph. (For assignment details, see page 3)
Week 12 20.12.2023	**Theoretical Course:** The roof systems	**The Submission of Assignment 4** **Assignment 5:** Examination of the components of a roof system example. (For assignment details, see page 3)
Week 13 27.12.2023	**Theoretical Course:** The interior wall system	**The Submission of Assignment 5**
Week 14 03.01.2024	**Studio work 3:** The plan and sections of the masonry building	**Studio work 3:**1/50_ drawing of the masonry structure; plan + 2 cross-sections + front elevation. (For application details, see page 4)
Week 15 10.01.2024	**Studio work 4:** The plan and sections of the frame building	**Studio work 4:**1/50_drawing of the reinforced concrete frame structure; plan + 2 cross-sections + front elevation. (For application details, see page 4)
Week 16 15.01.2024 - 28.01.2024	**Final Exam**	

IN-TERM STUDIES

I.ASSIGNMENTS

Assignment 1 (Date of assignment: 15.11.2023– Date of submission: 29.11.2023)
Make a 1/20 scale sectional physical model of a chosen flooring system (wood or steel) from the literature. Physical model size: 20x20 cm.

Assignment 2 (Date of assignment: 29.11.2023– Date of submission: 06.12.2023)
Take a photograph of an existing staircase system, and indicate its components on the photo. Provide written information about its material/structure and construction system.

Assignment 3 (Date of assignment: 06.12.2023– Date of submission: 13.12.2023)
Photocopy a selected example of a wall system from the literature and indicate its components on the photocopy. Provide written information about its material, structure, and construction system.

Assignment 4 (Date of assignment: 13.12.2023– Date of submission: 20.12.2023)
Take a photograph of the window or door system in your home, and indicate its components on the photo. Provide written information about its material, structure, and construction system.

Assignment 5 (Date of assignment: 20.12.2023– Date of submission: 27.12.2023)
Photocopy a selected example of a roof system from the literature, and indicate its components on the photocopy. Provide written information about its material, structure, and construction system.

NOTES ABOUT THE FORMAT OF ASSIGNMENT SUBMISSION

- The cover page should be organized to include the name and surname of the person preparing the assignment, the topic of the assignment, the submission date, and the sources used. If there are multiple papers, they should be fastened together with a pin or a paperclip or submitted in a folder.
- The assignment number and topic to be written on the first page should be as shown below, exactly as provided on the given sheet:

Assignment 3 (Date of assignment: 06.12.2023– Date of submission: 13.12.2023)

Photocopy a selected example of a wall system from the literature and indicate its components on the photocopy. Provide written information about its material, structure, and construction system.

- SOURCE: The source from which the selected example is obtained should be specified, such as the journal/book it is taken from or its location (e.g., MU Library staircase or the window/door frame of a residential building in Şişli).
- The prepared assignment should clearly explain the required information (the information requested on the assignment topics is underlined).

II. STUDIO WORKS

In the 2023-24 Fall semester, a total of 4 applications/studio works will be conducted within the scope of Materials and Technology 1 course.

AIM

The aim is to enable the student to **understand** the difference between the structure and subsystems and the building element systems.

Information regarding the execution, evaluation, submission method, topics, and dates of the studio works is provided below:

1. Conducting the Studio Works
The duration of each studio work is 4 hours. Students should bring drawing tools to the class.

The works conducted in the studio will be submitted to the group coordinator at the end of the class

2. Evaluation of the Applications

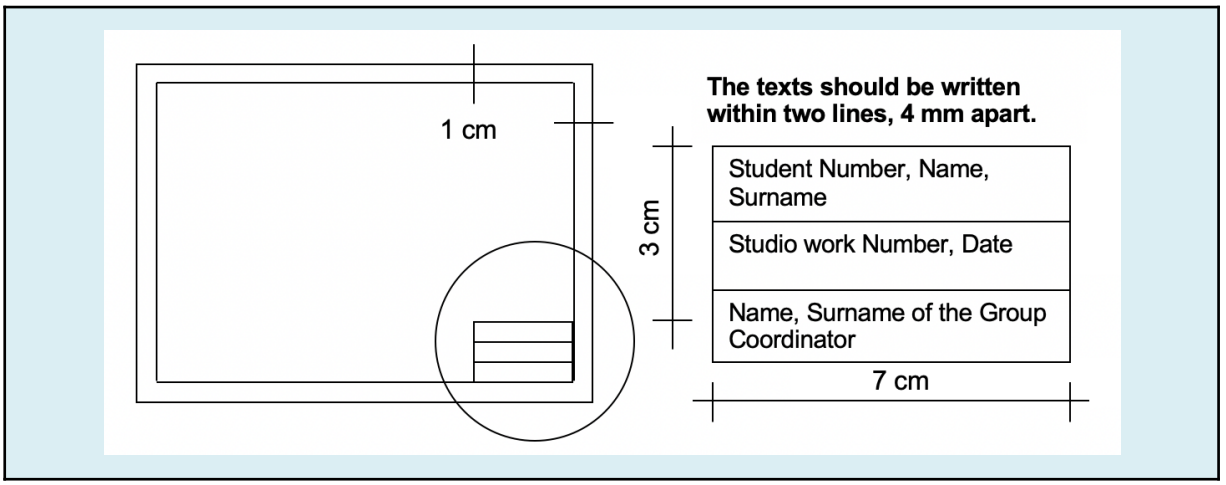
- The average of the studio work grades will have a **40%** impact on the midterm grade.
- Drawings should be made in **accordance with technical drawing rules** (Reference: Orhan Şahinler-Fehmi Kızıl, 'Mimarlık'ta Teknik Resim', Yay Yayıncılık, İstanbul, 1990).

3. The Subjects and the Dates of Studio Works

- **Studio work 1 – 01.11.2023** The foundation plan and sections of the masonry structure on the given sheet will be drawn to a scale of 1/50 and submitted to the group coordinator at the end of the class.
- **Studio work 2 – 08.11.2023** The foundation plan and sections of the frame structure on the given sheet will be drawn to a scale of 1/50 and submitted to the group coordinator at the end of the class.
- **Studio work 3 – 03.01.2024** The plan, two cross-sections, and the front elevation of the single-story masonry residential building provided on the given sheet will be drawn to a scale of 1/50, in accordance with technical drawing rules, and submitted to the group coordinator at the end of the class.
- **Studio work 4 – 10.01.2024** The plan, two cross-sections, and the front elevation of the single-story reinforced concrete frame system residential building provided on the given sheet will be drawn to a scale of 1/50, in accordance with technical drawing rules, and submitted to the group coordinator at the end of the class.

4.The Format of Studio Works Submission

- 35x50 sketch papers will be used for **studio works**. Before coming to the class, each student must prepare their sheet in the following format.



References

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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)	15	2	30
Assignments, Studio works	9	3	27
Midterm Exam	1	2	2
Final Exam	1	2	2
Working Hours in Total			117
Working Hours in Total / 30			3.9
ECTS Credit of the Course			4