ARCH 241 – Structure and Architecture **October 5th, 2023**

Faculty: Architecture
Course Code & Number: ARCH 241
Type of Course: Compulsory
Course Credit Hours: (3+0+0) 3 / 5 ECTS
Language of Instruction: English
Course Instructor: Asst. Prof. Dr. Gökhan Kınayoğlu

Department: Architecture
Course Title: Structure and Architecture
Semester: Fall
Pre-requisite: None
Mode of Delivery: Face to face
Classroom: K085

CATALOG DESCRIPTION

The course aims to provide basic knowledge of structures and comprehension of the fundamental principles of structural behaviors especially in reinforced concrete and steel structures, in which the taught knowledge would be applicable to any type of structural system. The course emphasizes the relationship between structure and architecture and relates the basic principles of structural behavior with architecture. Students will investigate the behavior of structural systems and analyze simple structural systems through design exercises and case studies.

LEARNING OUTCOMES

Upon successful completion of this course, a student will be able to
1. develop an intricate understanding of structures and comprehend fundamental principles of structural behaviors
2. appreciate the relationship between structure and architecture
3. study different structural behaviors of architectural elements, like beams, columns, slabs, plates, trusses, arches, shells, cables, and pneumatic structures etc.
4. recognize contemporary building materials and structural systems
5. analyze simple structural systems, distinguish forces acting on the structures and comment on how structures behave

Teaching Methods & Learning Activities: Lectures, critiques, questioning, teaching, inquiry, case-studies, presentations, group works.

COURSE POLICIES

Language: The lectures, class discussions and all your presentations will be in English. It is advised that you have access to an online English dictionary website and please immediately ask when you don't understand a term/word/verb/phrase etc.

Attendance: It is extremely important to follow the course sessions, hence the compulsory attendance. More than 30% worth of non-attendance results in failing. The attendances will be taken every week, beginning from October 9th.

Missed Work: Unless a medical report or an accepted excuse by the university policies, the instructor will evaluate the assignment/session as missed.

Plagiarism & Cheating: Each student is expected to respect others' work and learning experience, avoid plagiarism and cheating, provide appropriate citation of others' ideas, works and products. Each work should be an original product of students' own learning and research process.

Student Workload: 104 hours (Lectures 42 hrs | Assignments: 37 hrs | Final Assignment: 25 hrs)

Course Instructor: | **Office Hours:** Monday, 13.00-13.45
Asst. Prof. Dr. Gökhan Kınayoğlu | **E-mail:** gokhan.kinayoglu@tedu.edu.tr

INSTRUCTORS' ABSENCE As faculty are involved in research, teaching other courses, university service etc., the instructor(s) may be absent from time to time during the semester. Every effort will be made to make up any time missed by the faculty. Students will be informed, whenever possible, of expected absence.

TENTATIVE CALENDAR

Course sessions are on Mondays, 14.00 to 16.50.

October 2nd	Introduction & Overview
October 9th	What is a 'structure'? | Structural Principles
October 16th	Column & Beam & Slab
October 23rd	Reinforced Concrete Systems
October 30th	Reinforced Concrete Systems
November 6th	Reinforced Concrete Systems
November 13th	Midterm
November 20th	Steel Structures
November 27th	Steel Structures
December 4th	Internal Forces | Cantilevers
December 11th	Trusses
December 18th	Shell Structures
December 25th	Tensile & Pneumatic Structures
January 8th	Architectural Representation of Structural Elements | Term Review
To be Arranged (15 - 28 January)	Final Exam

GRADING

Attendance		15
Midterm		40
Final Project		45
Possible Contribution		10
	Total	100 + 10

REFERENCES

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Charleson, A., Structure as Architecture: A Source Book for Architects and Structural Engineers. Architectural Press, 2005.

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Eriç, M., Yapı Fiziği ve Malzemesi. Literatür Yayıncılık, 1994.

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Moussavi, F., The Function of Form. Actar and Harvard Graduate School of Design, 2009.

Muttoni, A., The Art of Structures: Introduction to the Functioning of Structures in Architecture. New York, NY: Routledge, 2011.

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Salvadori, Mario. Why Buildings Stand Up: The Strength of Architecture. W. W. Norton & Company, 2002.

Sandaker, Bjørn Normann, The Structural Basis of Architecture. Milton Park, Abingdon, Oxon; New York: Routledge, 2011.

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Silver, P. & McLean, W. Introduction to Architectural Technology, Laurence King Publishing, 2008.

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