



## ECTS COURSE INFORMATION FORM

School/Faculty/Institute	Faculty of Arts, Design and Architecture		
Program	B. Arch. in Architecture	Required	
Semester	Fall		

Course Code	ARC 331			
Course Title in English	Architectural Technology 4			
Course Title in Turkish	Mimari Teknoloji 4			
Language of Instruction	English			
Type of Course	Lecture			
Level of Course	Undergraduate			
Semester	Fall			
Contact Hours per Week	Lecture: 4	Recitation:	Lab:	Studio:
Estimated Student Workload	298 hours per semester.			
Number of Credits	5 ECTS			
Grading Mode	Standard Letter Grade			
Pre-requisites	ARC 132			
Expected Prior Knowledge	None			
Co-requisites	None			
Registration Restrictions	Only Undergraduate Students			
Overall Educational Objective	The educational objective of this studio is the comprehension of building technology integration into architectural projects, with a focus on the structural system.			
Course Description	Architectural Technology 4 is a lecture course that is designed to be conducted in coordination with Architectural Design 5 studio course. It is set to create a platform to assess and develop appropriate technological components for the studio project. The course is based on lectures, enriched with studio activity, where components are developed for integration into the design.			
Course Description in Turkish	Mimari Teknoloji 4 dersi, Mimari Tasarım 5 stüdyosu ile koordinasyon içinde yürütülen bir uygulamalı derstir. Ders mimari teknoloji bileşenlerinin, başta strüktürel sistem olmak üzere mimari bütün içindeki anlamı, işlevi ve teknolojisini mercek altına alan anlatımlara ve paylaşımlara ortam sağlar. Teorik anlatım oturumlarına eklenen uygulama saatlerinde katılımcılar stüdyo projelerinin teknoloji bileşenleri ile ilgili çalışma yaparlar.			
Course Learning Outcomes and Competences	By successful completion of the course, the learner is expected to gain: 1. Comprehension of technological components in terms of their meaning, function and technology in an architectural system. 2. Experience in architectural technology and design integration. 3. Basic knowledge on structural system technology in architecture. 4. Overview on energy efficiency via passive environmental control measures in architecture. 4. Understanding of the impact of materials on architectural design.			
Relation to Program Outcomes and Competences: N=None S=Supportive H=Highly Related				
Program Outcomes and Competences			Level	Assessed by

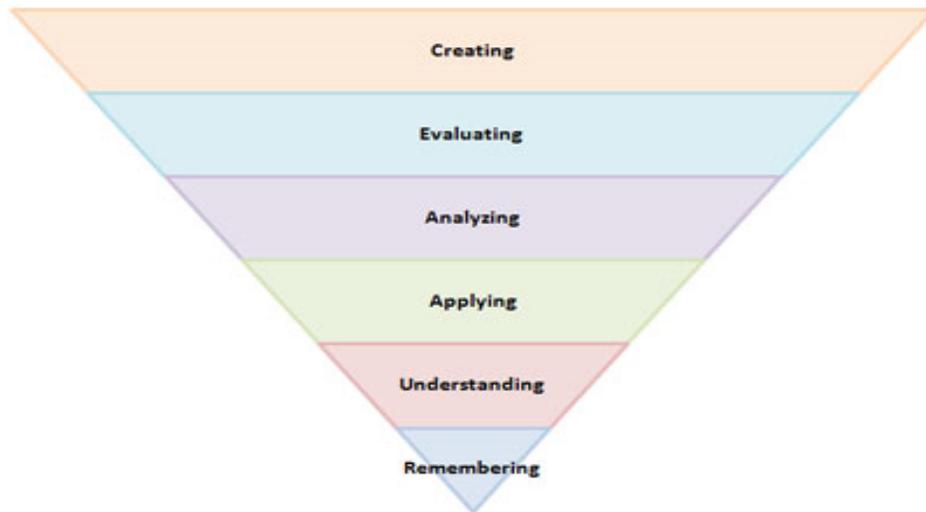
	N/S/H	HW, Assignments
1. Ability to read, write and speak effectively in Turkish and English, equivalent to a B2 European Language Passport Level in English.	<b>S</b>	
2. Ability to question and interpret ideas considering diverse points of view; gather and use data, develop concepts related to people, places and the environment, and make individual decisions.	<b>H</b>	
3. Ability to use appropriate graphical methods including freehand and digital drawing techniques, (ECDL advanced) in order to develop ideas in addition to communicate the process of design.	<b>N</b>	
4. Ability to use fundamental principles of architectural design considering the place, climate, people, society as factors, and simultaneously express present principles in relevant precedents.	<b>H</b>	
5. Understanding of architectural principles belonging to global and local cultures shaped by the climatic, technological, socioeconomic, cultural factors, in addition to principles of historic preservation while developing architectural and urban design projects.	<b>H</b>	Assignment
6. Understanding the theories and methods used to describe the relationship between human behavior and physical environment; and concurrently understanding different needs, values, behavioral norms, social and spatial patterns of different cultures.	<b>N</b>	
7. Ability to apply various stages of design processes considering the client and user needs, which include space and equipment requirements besides site conditions and relevant laws and standards.	<b>S</b>	
8. Understanding the role of applied research in determining function, form and systems and their impact on human conditions and behavior.	<b>S</b>	
9. Understanding of the basic principles of static and dynamic structural behavior that withstand gravity and lateral forces, in addition to the evolution and applications of structural systems.	<b>H</b>	Assignment
10. Ability to apply the principles of sustainability in architectural and urban design projects that aim to preserve the natural and historic resources and provide healthful environments.	<b>N</b>	
11. Ability to apply the fundamental principles of building and safety systems such as mechanical, electrical, fire prevention, vertical circulation additionally to principles of accessibility into the design of buildings.	<b>H</b>	
12. Understanding the basic principles in the selection of materials, products, components and assemblies, based on their characteristics together with their performance, including their environmental impact and reuse possibilities.	<b>H</b>	
13. Ability to produce a comprehensive architectural project from the schematic design phase to design development phase, while integrating structural systems, life safety and sustainability principles.	<b>H</b>	
14. Understanding the principles of environmental systems such as energy preservation, active and passive heating and cooling systems, air quality, solar orientation, day lighting and artificial illumination, and acoustics; in addition to the use of appropriate performance assessment tools.	<b>H</b>	
15. Ability to choose appropriate materials, products and components in the implementation of design building envelope systems.	<b>H</b>	
16. Ability to understand the principles and concepts of different fields in multidisciplinary design processes and the ability to work in collaboration with others as a member of the design team.	<b>N</b>	
17. Understanding the responsibility of the architect to organize and lead design and construction processes considering the environmental, social and aesthetic issues of the society.	<b>S</b>	
18. Understanding the legal responsibilities of the architect of the architect effecting the design and construction of a building such as public health and safety; accessibility, preservation, building codes and regulations as well as user rights.	<b>N</b>	
19. Ability to understand the ethical issues involved in the design and construction of buildings and provide services for the benefit of the society. In addition to the ability to act with social responsibility in global and local scales that contribute to the well being of the society.	<b>S</b>	
20. Understanding the methods for competing for commissions, selecting consultants and assembling teams, recommending project delivery methods, which involve financial management and business planning, time management, risk management, mediation and arbitration.	<b>N</b>	
Name of Instructor	Asst. Prof. Dr. Kürşad ÖZDEMİR	
Course Contents	Week	Topic
	1.	Introduction to the course and roadmap.

	2.	TECHNOLOGY - ARCHITECTURE (CONCEPT, FORMS, ENVIRONMENT)
	3.	TECHNOLOGY - STRUCTURES (BIOMIMICRY - STRUCTURES)
	4.	TECHNOLOGY - MATERIALS (MASONRY / CONCRETE)
	5.	TECHNOLOGY - STRUCTURES (MASONRY / COMPRESSIVE STRUCTURES)
	6.	TECHNOLOGY - MATERIALS (TIMBER)
	7.	TECHNOLOGY - STRUCTURES (TIMBER)
	8.	TECHNOLOGY - MATERIALS (IRON > STEEL)
	9.	TECHNOLOGY - STRUCTURES (STEEL)
	10.	PRESENTATIONS - MIDTERM EVALUATION
	11.	TECHNOLOGY - STRUCTURES (STEEL)
	12.	ENVIRONMENTAL CONTROL (SYSTEMS / INTEGRATION)
	13.	INTEGRATED WORK
	14.	INTEGRATED WORK
Required/Recommended Readings	Recommended Reading: <b>Silver, McLean, Whitsett</b> (2013) Introduction to Architectural Technology, Laurence King, London <b>Allen, Zalewski</b> (2010) Form and Forces, Wiley, NJ <b>Amery C</b> (1996) Architektur, Industrie und Innovation. Ernst & Sohn, Berlin <b>Depazes A</b> (2010) Constructing Architecture, Birkhauser, Zürich <i>Required readings for the term will be posted on Blackboard.</i>	
Teaching Methods	Architectural Technology is conducted in coordination with Architectural Design 5 course, set to form a body of technology-design integration. The teaching method is based on knowledge transfer - discussion-development sequence, facilitated by active learning approach of flipped classroom. The assessment of technological components in Arc. Technology course provides practical feed-backs for integration into the design work. Taking initiatives and responsibility in the design development enables the participant to take part in active learning.	
Homework and Projects	1 project, 1 preliminary assignment	
Laboratory Work	-	
Computer Use	Yes	
Other Activities	Field Trips	
Assessment Methods	1. Performance in sessions: 30 points 2. Assignment: 20 points 3. Final Assignment: 50 points (stands for final examination)	
Course Administration	Office: Kürşad ÖZDEMİR: Block A, Floor5, Email: <a href="mailto:ozdemirku@mef.edu.tr">ozdemirku@mef.edu.tr</a> Student participation will be essential for the design studio. Attending both reviews including the Final Review are crucial elements in the final grade. Late submissions will not be accepted. 80% attendance is compulsory for a successful outcome.	

ECTS Student Workload Estimation	Activity	Weeks	Hours			Calculation	Explanation
		Weeks per Semester (A)	Weight for the Activity (B)	Hours for the Activity Itself (C)	Hours for the Activity Required		
	Lecture	14	2	4	2	112	A*(B+C+D)
	Lab etc.					0	
	Midterm(s)	0	0	0		0	A*(B+C+D)
	Project, Presentation	1	2	1	0	3	A*(B+C+D)
	Final Examination	1	8	2	0	10	A*(B+C+D)
	Total Workload					125	
	Workload/25					5	
	ECTS					5	

**Key verbs for cognitive domain in writing learning outcomes and competences:**

# Bloom's Taxonomy



Revised edition by Lorin Anderson (a student of Bloom)

## Key Verbs:

Remembering: defines, describes, identifies, knows, labels, lists, matches, names, outlines, recalls, recognizes, reproduces, selects, states.

Understanding: comprehends, converts, defends, distinguishes, estimates, explains, extends, generalizes, gives an example, infers, interprets, paraphrases, predicts, rewrites, summarizes, translates.

Applying: applies, changes, computes, constructs, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses.

Analyzing: analyzes, breaks down, compares, contrasts, diagrams, deconstructs, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, relates, selects, separates.

Evaluating: appraises, compares, concludes, contrasts, criticizes, critiques, defends, describes, discriminates, evaluates, explains, interprets, justifies, relates, summarizes, supports.

Creating: categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes.

## Key verbs for affective domain in writing learning outcomes and competences:

Receiving Phenomena: asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects, sits, erects, replies, uses.

Responding to Phenomena: answers, assists, aids, complies, conforms, discusses, greets, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes.

Valuing: completes, demonstrates, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works.

Organizing: adheres, alters, arranges, combines, compares, completes, defends, explains, formulates, generalizes, identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes.

Internalizing values: acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies, questions, revises, serves, solves, verifies.