



ECTS COURSE INFORMATION FORM

School/Faculty/Institute	Faculty of Arts, Design and Architecture		
Program	B.Sc. in Architecture	Required	

Course Code	ARC 231			
Course Title in English	Architectural Technology II			
Course Title in Turkish	Mimarlık Teknolojisi II			
Language of Instruction	English			
Type of Course	Flipped Classroom			
Level of Course	Undergraduate			
Semester	Fall			
Contact Hours per Week	Lecture: 3	Recitation:	Lab:	Studio:
Estimated Student Workload	120 hours per semester.			
Number of Credits	5 ECTS			
Grading Mode	Standard Letter Grade			
Pre-requisites	None			
Expected Prior Knowledge	None			
Co-requisites	None			
Registration Restrictions	Only Undergraduate Students			
Overall Educational Objective	To have insight on principles of structural systems, behavior of forces, development and applications of contemporary structural systems			
Course Description	<p>This course focuses on (principles of) structural and architectural design along with relationship of architectural practice with the civil engineering disciplines. During the course, fundamental concepts of physics/statics are being remembered and loads, behavior of materials under load are discussed. Different types of structural systems like shell structures, frame structures, tensile structures are introduced and their principles and load bearing relations are described through visual materials. These concepts are supported by weekly in-class exercises.</p> <p>At the end of the semester each student is responsible to prepare a presentation about one of the case building which have examined during the term. It is expected to be supported by research, scaled models, drawings, sketches and diagrams.</p>			
Course Description in Turkish	<p>Ders strüktürel ve mimari tasarım prensipleri ile mimarlık pratiğinin inşaat mühendisliği disiplinleriyle ilişkisine odaklanır. Dönem boyunca basit fizik/statik kuralları hatırlatılacak, yükler, yük altında malzeme davranışları ve taşıyıcı sistem seçimine etkileri tartışılacaktır. Kabuk yapılar, çerçeve strüktürler, asma germe sistemler gibi farklı sistemlere ek olarak komposit sistemler tanıtılacak ve yük davranışları görsel malzemeler üzerinden tartışılacaktır. Bu kavramlar, haftalık sınıf içi çalışmalar ile desteklenmektedir.</p> <p>Dönem sonunda her öğrenci, dönem boyunca bahsedilmiş bir örnek yapı hakkında bir sunum hazırlamak ile sorumludur. Sunumun araştırma, ölçekli modeller, çizimler, eskizler ve diyagramlar ile desteklenmesi beklenmektedir.</p>			

Course Learning Outcomes and Competences	Upon successful completion of the course, the learner is expected to be able to: <ol style="list-style-type: none"> 1. understand the importance of structural logic on architectural design, the integration of fields and able to use the terminology; 2. comprehend basic principles of static and dynamic structural behavior that look at different phases of design in an integrated way; 3. recognize the basic principles in the selection of materials, components and assemblies, based on their characteristics together with their performance; 4. know new technologies to design and visualize construction process of a building. 		
Relation to Program Outcomes and Competences: N=None S=Supportive H=Highly Related			
Program Outcomes and Competences	Level	Assessed by	
	N/S/H	Presentation, Sketchbook, Quizzes.	
1. Ability to read, write and speak effectively in Turkish and English, equivalent to a B2 European Language Passport Level in English.	S		
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.	H	Quizzes, Presentation, Sketchbook.	
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.	S		
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.	S		
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.	S		
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.	S		
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.	S		
8. Understanding the role of applied research in determining function, form and systems and their impact on human conditions and behavior.	H	Quizzes, Presentation, Sketchbook.	
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.	H	Quizzes, Presentation, Sketchbook.	
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.	S		
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.	S		
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.	H	Quizzes, Presentation, Sketchbook.	
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.	S		
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.	N		
15. Ability to choose appropriate materials, products and components in the implementation of design building envelope systems.	S		

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.	S	
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.	S	
18. Understanding the legal responsibilities 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.	S	
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.	S	
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.	S	

Prepared by and Date	İrem Korkmaz 09.03.2020	
Semester	Fall 2019-2020	
Name of Instructor	Dr. Tomris AKIN	
Course Contents	Week	Topic
	1.	Introduction Categories of Structures Study and Discussion on Selected Buildings
	2.	Compressive Systems Study and Discussion on Selected Buildings
	3.	Compressive Systems, Arch, Vault, Dome Study and Discussion on Selected Buildings
	4.	Slabs, Types and Systems Study and Discussion on Selected Buildings
	5.	Shell Systems Study and Discussion on Selected Buildings
	6.	Shell Systems Study and Discussion on Selected Buildings
	7.	Truss Systems Study and Discussion on Selected Buildings
	8.	Truss Systems Study and Discussion on Selected Buildings
	9.	Truss Systems Study and Discussion on Selected Buildings
	10.	Tensile and Cable Systems Study and Discussion on Selected Buildings
	11.	Presentations and Discussion
	12.	Presentations and Discussion
	13.	Presentations and Discussion
	14.	Presentations and Discussion
	15.	Final Assessment Period
	16.	Final Assessment Period
Required/Recommended Readings	Recommended Reading: McLean W.&Silver, P.(2008) Introduction to Architectural Technology, Laurence King Publishers. McLean W.&Silver, P.&Evans P.(2014) Structural Engineering for Architects: A Handbook, Laurence King Publishers. Ching, F.D.K.(2014) Building Construction Illustrated, Wiley&Sons. Deplazes, A.(eds.) (2005) Constructing Architecture, Birkhäuser. Meistermann, A. (2007) Basics Loadbearing Systems, Birkhäuser. Balmond, C. (2007) Informal, Prestel.	

	Sasaki, M. (2007) Morphogenesis of Flux Structures, AA Publications. Nordenson, G. (2016) Reading Structures: 39 Projects and Built Works 1983-2011, Lars Müller Publishers Detail Magazine and Books.
Teaching Methods	The course has lectures by the instructor as well as extensive discussion and in-class exercise by the class weekly. The course follows the 'Flipped classroom' model, with the in-class studies and the group presentations and the slides and videos available to the students prior to class.
Homework and Projects	Weekly Answers on Notebooks and Final Presentation
Laboratory Work	-
Computer Use	Yes
Other Activities	Each student has to have their own sketchbook/notebook for the course and it is expected to use this sketchbook/notebook during the term both on and off the course.
Assessment Methods	1. Active and Positive Participation 20 Points 2. Quizzes 20 Points 3. Sketchbook/Notebook(s) 15 Points 4. Final Presentation 45 Points Regular attendance and participation is expected (%70 minimum). Academic Dishonesty and Plagiarism: YÖK Disciplinary Regulation.
Course Administration	Office: Block A, Tomris Akin 566 Email: akint@mef.edu.tr

ECTS Student Workload Estimation	Activity	No/Weeks	Hours			Calculation	Explanation
		No/Weeks per Semester (A)	Preparing for the Activity (B)	Spent in the Activity Itself (C)	Completing the Activity Requirements (D)		
	Lecture	14	1	3	1	70	A*(B+C+D)
	Lab etc.					0	
	Midterm(s)	0	0	0		0	A*(B+C+D)
	Assignment, Project, Quizzes	2	5	1		12	A*(B+C+D)
	Final Assessment	1	30	3	5	38	A*(B+C+D)
	Total Workload					120	
	Total Workload/25					4,8	
	ECTS					5	