



## ECTS COURSE INFORMATION FORM

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

Course Code	INT 435			
Course Title in English	Digital Fabrication and Furniture Design			
Course Title in Turkish	Dijital Fabrikasyon ve Mobilya Tasarımı			
Language of Instruction	English			
Type of Course	Flipped classroom			
Level of Course	Undergraduate			
Semester	Fall			
Contact Hours per Week	Lecture:	Recitation:	Lab: 4	Other:
Estimated Student Workload	90 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 learn digital design tools integrated with relevant fabrication methods for furniture making.			
Course Description	<p>In this course participants will experiment with complete workflows covering design, documentation and fabrication processes widely used in computer aided design and making of furniture.</p> <p>Advanced software will be introduced as design tools in touch with materiality. Concepts such as parametric, algorithmic, digital etc. are usually understood by students as producing novel and/or complex pictures in an abstract environment outside physical realm. To overcome this perception in the context of this course, software will be used as efficient tools to digitize and quantify abstract design into the physical limitations of material.</p>			

	Documentation for fabrication is another important aspect of the course. In this sense students will learn how to extract information from design tools, such as volumetric measurements, vectoral drawings and optimized 3D models. Depending on availability of machinery, extracted information will be used to fabricate scaled mock-ups.
<b>Course Description in Turkish</b>	<p>Ders sürecinde katılımcılar bilgisayar destekli mobilya tasarım ve üretiminde yaygın olarak kullanılan tasarım, dökümantasyon ve fabrikasyon iş-aışlarını deneyimleyeceklerdir.</p> <p>İleri seviye yazılımlar maddesellik ile ilişkili tasarım araçları olarak tanıtılacaktır. Parametrik, algoritmik, dijital gibi kavramlar genellikle öğrenciy fiziksel sınırlamaların dışında, yeni ve karmaşık sanal resimler üretmeyi çağrıştırmaktadır. Dersin içeriğinde bu algıyı yenmek için 'yazılım' soyut tasarımı, malzemenin limitleri doğrultusunda sayısallaştıran ve ölçülebilir hale getiren araçlar olarak kullanılacaktır.</p> <p>Fabrikasyona yönelik projelendirme dersin diğer önemli boyutudur. Öğrenciler tasarım araçlarından hacim ölçüleri, vektörel çizimler, optimize 3D modeller gibi sayısal bilgiyi dışı aktarmayı öğrenecektir. İmkanlar doğrultusunda dışı aktarılan bilgi küçük ölçekli prototiplerin yapımı için kullanılacaktır.</p>
<b>Course Learning Outcomes and Competences</b>	<p>Upon successful completion of the course, the learner is expected to be able to:</p> <ol style="list-style-type: none"> <li>1. understand advanced computer aided design tools;</li> <li>2. understand the logic of algorithmic design;</li> <li>3. integrate computer aided design tools with digital fabrication;</li> <li>4. know various workflows widely used in computer aided design and fabrication of furniture and architectural elements;</li> <li>5. understand fabrication machinery, their limitations and corresponding applications;</li> <li>6. experiment feeding information to fabrication tools.</li> </ol>

**Relation to Program Outcomes and Competences: N=None S=Supportive H=Highly Related**

<b>Program Outcomes and Competences</b>	<b>Level</b>	<b>Assessed by</b>
	<b>N/S/H</b>	Exam, HW, Seminar.
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 use the knowledge over human-space relationship in terms of perception, experience, and behavior in interior design	<b>S</b>	Project
3- Ability to approach to the interior design profession from the perspective of new and evolving theories and practices.	<b>H</b>	Project
4-Developing an independent and critical perspective to spatial design	<b>S</b>	Project
5- Effective use of interdisciplinary research and design principles in the challenges he/she faces in the field.	<b>S</b>	
6- Acquiring the capability to creatively synthesize and bring together insight and knowledge from different sources to solve problems in designing interior space.	<b>S</b>	Project
7- Acquiring the ethic and methodological formation to design in line with social responsibility of the interior designer and sustainability of the practice of the profession.	<b>S</b>	Project
8- Approaching to and recognizing design and formation of space as a social and ethical practice.	<b>S</b>	Project

9- Having personal traits of creativity, leadership, and inquisitiveness that is required for innovation in design.	<b>H</b>	
10- Ability to pursuing interior design process in the framework of interdisciplinary and multi-dimensional relationships in local, national and global contexts.	<b>S</b>	
11- Ability to present design ideas by utilizing analog and digital presentation tools and in oral and printed form in national and international settings.	<b>S</b>	Project
12- Creating designs that are sustainable and respectful to diverse user needs, local and regional values, and natural and cultural heritage.	<b>H</b>	Project
13- Having vision of shaping future while being conscious of the social role and importance of interior design.	<b>H</b>	Project
14- Determining personal goals of the lifelong learning towards being an intellectual professional and being able to communicate with individuals and groups in national and international spheres for this purpose.	<b>S</b>	
15- Execution of interior design projects according to the national and international standards, professional etiquette, legal and institutional codes.	<b>H</b>	
16- Following most recent researches, discoveries, and practices to reach emerging thoughts, practices, and theoretical perspectives	<b>H</b>	
17- Defining design problems and forming critical approaches and sharing them with relevant stakeholders in the field after recognizing and criticizing contemporary spatial, environmental, urban and social problems.	<b>S</b>	Project

<b>Prepared by and Date</b>	Abdulkadir Eren Öztürk, 11.09.2019	
<b>Semester</b>	Fall 2019-2020	
<b>Name of Instructor</b>	Abdulkadir Eren Öztürk	
<b>Course Contents</b>	Week	Topic
	1.	Roadmap of the course + discussion: what is digital? what is fabrication?
	2.	Programming shape: extrusions and grids
	3.	Programming shape: offset and gaps
	4.	Furniture 1: Application of methods and assessment
	5.	Programming shape: Sub-division methods, component-based design

	6.	Programming shape: Triangular, rectangular, hexagonal tiles
	7.	Documentation: Vectoral drawings and notation
	8.	Furniture 2: Application of methods and assessment
	9.	Prototype fabrication
	10.	Programming shape: Consecutive sections and waffle structures
	11.	Programming shape: Space enclosing shapes and building methods and materials
	12.	Documentation: Structural analysis, automated multiple sections and notations
	13.	Furniture 3: Application of methods and assessment
	14.	Prototype fabrication of selected work
	15.	Final Assessment
	16.	Final Assessment
<b>Required/Recommended Readings</b>	<p>Recommended Reading:</p> <p>Anderson, Stanfor (2004) Eladio Dieste, Innovation in Structural Art</p> <p>Sakamoto, Tomoko (2008) From Control to Design, Parametric/Algorithmic Architecture</p> <p>Mendes, Achim (and others) (2018) Digital Fabrication</p> <p>Lawson, Stuart (2013) Furniture Design, An Introduction to Development, Materials and Manufacturing</p> <p>Gura, Judith (2012) Design After Modernism, Furniture and Interiors 1970-2010</p>	
<b>Teaching Methods</b>	<p>Digital fabrication and Furniture Design is a flexible lab course in line with principles of active learning. After brief discussions of pre-consumed course material, students work individually or in groups, while instructor is ready to help throughout the whole process.</p> <p>Each new topic starts with analyzing a selected project and trying to guess its design, documentation and fabrication processes. Particular details, repetitive or unique aspects, use of materials and related building methods are discussed. Students are encouraged to think as the designer who is expected to produce the construction project of the shown work. Challenging issues of the designing and making processes are identified.</p> <p>In the second part, some methods to address identified issues are thought. Students are actively working on their computers at this moment. Depending on the selected project, this contains advanced use of algorithmic design tools such as grasshopper, python script, or third-party programs to common design software.</p> <p>Assessment is divided and continuous throughout the course to keep interest levels high and stress levels low. All assignments are equally important and attendance is graded. Students have a say at what they will learn within the limitations of course description.</p>	
<b>Homework and Projects</b>	3 Assignments	
<b>Laboratory Work</b>	-	
<b>Computer Use</b>	Yes	

<b>Other Activities</b>	Short video screenings and field work	
<b>Assessment Methods</b>	Performance in studio and attendance:	%25
	Assignment1:	%25
	Assignment2:	% 25
	Assignment3:	% 25
<b>Course Administration</b>	Office: Abdulkadir Eren Öztürk Email: <a href="mailto:aberenozturk@gmail.com">aberenozturk@gmail.com</a> 80% attendance is compulsory for a successful outcome.  Academic Dishonesty and Plagiarism: YOK Disciplinary Regulation	

Activity	No/Weeks	Hours			Calculation	Explanation
		Preparing for the Activity (B)	Spent in the Activity Itself (C)	Completing the Activity Requirements (D)		
Lecture	14	2	3	1	84	A*(B+C+D)
Lab etc.					0	
Midterm(s)	2	8	2		20	A*(B+C+D)
Assingment, Project, Presentation	1	8			8	A*(B+C+D)
Final Examination	1	16	2		18	A*(B+C+D)
Total Workload					130	
Total Workload/25					5,2	
ECTS					<b>5</b>	