



**ESOGU Faculty of Art and Design
Industrial Design Department
COURSE INFORMATION FORM**

SEMESTER	SPRING
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COURSE CODE	1411xxx	COURSE NAME	Material and Manufacturing Techniques II
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	Type	Language
2	1	1	0	2	3	COMPULSORY (X) ELECTIVE ()	Turkish

COURSE CATEGORY				
Basic Education	Design	Natural and Applied Science	Social Science	Art
	X	X		

ASSESSMENT CRITERIA			
	Evaluation Type	Quantity	%
MID-TERM	1st Mid-Term	1	25
	2nd Mid-Term		
	Quiz	3	25
	Homework	1	10
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	40

PREREQUIEITE(S)	Having successfully completed the Material and Manufacturing Techniques I course
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COURSE DESCRIPTION	This course covers drawing a general framework about the materials used in product design and giving basic information about the material. Giving the relations between the properties of these materials and their production methods in detail, explaining the production techniques related to metal, glass, ceramic and composite materials, supporting the information given with technical trips to be organized related to the subject, etc. topics are discussed.
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COURSE OBJECTIVES	The aim of this course is to gain basic concepts about materials and production techniques used in design processes based on industrial production. The aim of this course is to reflect the knowledge of metal, glass, ceramic, composite materials and production methods of the material given during the term into practice.
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION	In the projects they will develop, achieve results on the basis of engineering based on interdisciplinary communication, use materials and manufacturing methods. Gains the ability to propose alternatives by establishing the relationship between design-material-production methods.
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COURSE OUTCOMES	Have detailed information about metal, glass, ceramic and composite materials. By learning the properties, usage areas and related production techniques of these materials in detail, they understand their place in industrial design. Understands materials and related manufacturing methods practically based on interdisciplinary interaction. Selects the right material and production method during the design process. Students gain the ability to make models with the material knowledge they
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	<p>have learned.</p> <p>They learn the production technique suitable for the material.</p> <p>They learn the differences in time, quantity and cost between production techniques.</p> <p>They learn the relationship between the production method and the product.</p>
TEXTBOOK	<ul style="list-style-type: none"> - Fındık, F. (2016) Malzeme ve Tasarım-Tasarım-Malzeme seçimi-Uygulama, Seçkin Yayınevi, Ankara. - Onaran, K. (2003). Malzeme Bilimi, Bilim Teknik Yayınevi. - Smith, W. F. (2001). Malzeme Bilimi ve Mühendisliği, Çev. Kınıkoğlu, N. G., Literatür Yayıncılık, İstanbul. - Metal Meslek Bilgisi, M.E.B. Yayınları, Ajans Türk Yayıncılık,1995. - Canbulat, M. T., Özkaraman Şen, M. (2014). Metal Mobilya Tasarım ve Üretim İlkeleri, Mimar Sinan Güzel Sanatlar Üniversitesi Yayınları, İstanbul. - Canbulat, M. T. (2011). Tasarımcılar için Metal Şekillendirme Yöntemleri, Birsen Yayınevi, İstanbul.
OTHER REFERENCES	<ul style="list-style-type: none"> - Lesko, J. (2008). Industrial design: Materials and manufacturing guide. Wiley.com.
TOOLS AND EQUIPMENTS REQUIRED	

WEEKLY COURSE SYLLABUS

WEEK	TOPICS
1	Material use and selection
2	Material and design relationship
3	Mechanical properties in industrial materials
4	Structure and properties of metal materials
5	Forming methods in metal materials: Plastic forming
6	Forming methods in metal materials: Machining
7	Forming methods in metal materials: Joining-Additive
8	Mid-term
9	Forming methods in metal materials: Casting
10	Powder Metallurgy
11	Structure and properties of glass materials
12	Structure and properties of ceramic materials
13	Forming methods in ceramic materials
14	Composite materials, Corian, Elastomers, Colloidal materials
15	Forming methods in composite materials
16	Final Exam

NO	PROGRAM OUTCOMES	Contribution Level		
		3	2	1
1	Within cultural, historical and artistic context the ability to integrate theoretical knowledge about production and consumption mechanisms into the design practice;			X
2	The ability to plan the design process, to choose and use appropriate methods and techniques;		X	
3	The ability to identify design problems and related sub-problems and to produce creative solutions with a critical and dialectical approach;			X
4	The ability to design in terms of spatial thinking using design principles and elements;			X
5	The ability to make applications in the interaction of aesthetics and function using design elements and means and to evaluate these applications;		X	
6	The ability to visualize and present using two and three dimensional design tools;			X
7	The ability to follow and apply technological developments, current design approaches, sustainable production methods, materials and innovations in the field of informatics in design projects;	X		
8	The ability to use field knowledge in industrial design projects by considering the needs and interests of the society and target users within the scope of environmental awareness, professional ethics and the laws;			X
9	The ability to carry out the design process effectively individually or in a team;			X
10	The ability to take an active role in discipline-specific or interdisciplinary studies at the national and international levels.			X

1: None. 2: Partial contribution. 3: Complete contribution.

Instructor(s): Asst. Prof. Dr. Cemil YAVUZ

Signature:

Date: