T.C. ESKİŞEHİR OSMANGAZİ UNIVERSITY
ENGINEERING AND ARCHITECTURE FACULTY
MECHANICAL ENGINEERING DEPARTMENT

COURSE INFORMATION FORM

SEMESTER	Spring

COURSE CODE	151814239	COURSE NAME	Engineering Materials

SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
4	3	0	0	3	5	COMPULSORY (X) ELECTIVE ( )	Turkish

COURSE CATAGORY			
Basic Science	Basic Engineering	Engineering Subjects [if it contains considerable design, mark with (√)]	Social Science
		X	

ASSESSMENT CRITERIA			
	Evaluation Type	Quantity	%
MID-TERM	Mid-Term	1	50
	Quiz		
	Homework		
	Project		
	Report		
	Others (……)		
FINAL EXAM		1	50

PREREQUIEITE(S)	
COURSE DESCRIPTION	Cast Irons, Classification of steels, Norms, Fe-C Phase diagram, Heat Treatments of steels, TTT Diagrams, Surface Hardening Methods for Steels, Diffusion, Non-Ferrous Metallic Alloys, Thermal, Electrical and Magnetic Properties of Materials, Plastics, Ceramics, Composite materials
COURSE OBJECTIVES	To learn the properties and applications of engineering materials that are used in the machine industry
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	Necessary decisions can be made for material which is used in all kind of engineering applications
COURSE OUTCOMES	Interpretation of engineering materials, adaptation of theoretical knowledge to practical applications, knowledge of engineering materials, design of engineering materials, evaluation of working conditions of engineering materials
TEXTBOOK	Materials Science and Engineering, Çev. Kenan Genel, Nobel Yayın, 2014
OTHER REFERENCES	1.Elements of Materials Science and Engineering, Vlack, L.H.V., Addison-Wesley Pub.Co., 1995 2.Malzeme Bilimi ve Mühendisliği, Smith, W.F., Çev.Kınıkoğlu, N. 3.Malzeme bilgisi I-II, Bargel, Çev. Güleç, Ş., Tübitak Yayınları,1987 5.Malzemelerin Yapı ve özellikleri, I-II-III-IV, Moffat, W.G., Pearsall, G.W., Çev. Onaran, K., İTÜ Yayınları, 1992
TOOLS AND EQUIPMENTS REQUIRED	

COURSE SYLLABUS	
WEEK	**TOPICS**
1	General Information
2	Cast Irons
3	Classification of steels
4	Norms
5	Fe-C Phase diagram
6	Heat Treatment of Steels, TTT Diagrams
7	Surface Hardening Methods for steels
8	Mid-Term Examination
9	Mid-Term Examination
10	Diffusion
11	Non-Ferrous Metallic Alloys
12	Thermal, Electrical and Magnetic Properties of Materials
13	Plastics, Ceramics
14	Composites
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems.	[ ]	[X]	[ ]
2	Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	[ ]	[X]	[ ]
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	[ ]	[X]	[ ]
4	Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies.	[X]	[ ]	[ ]
5	In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	[X]	[ ]	[ ]
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	[ ]	[ ]	[X]
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	[ ]	[ ]	[X]
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	[X]	[ ]	[ ]
9	Understanding of professional and ethical issues and taking responsibility	[X]	[ ]	[ ]
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	[ ]	[X]	[ ]
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	[ ]	[ ]	[X]
1:None. **2**:Partially contribution. **3**: Completely contribution.				

Prepared by: Doç. Dr. Melih Cemal KUŞHAN **Date: 13/11/2017**

Doç. Dr. Mustafa ULUTAN

Signature(s):