MATERIAL TECHNOLOGY

1	Course Title:	MATERIAL TECHNOLOGY	
2	Course Code:	MAK104	
3	Type of Course:	Compulsory	
4	Level of Course:	Short Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	5.00	
8	Theoretical (hour/week):	2.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	2	
11	Prerequisites:		
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Öğr.Gör. Oğuzhan Çankaya	
15	Course Lecturers:		
16	Contact information of the Course Coordinator:	e-posta: oguzhanc@uludag.edu.tr oda tel: 0 224 294 23 38	
17	Website:		
18	Objective of the Course:	To know the types of materials used in industrial area, understand the basic characteristics, location and design for the user to select the most suitable materials. Materials classify, microstructure recognize, interpret the Fe-C equilibrium diagram, hardened steel, and to be informed about the standards.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Identify the materials used in the manufacture of machinery
		2	Selecting the material used in the manufacture of machinery
		3	Identify their atomic structure and relative force
		4	To know the effects of various elements in steel
		5	Iron-Carbon (Fe-C) Equilibrium diagram of the read
		6	Non-Ferrous Metals recognize
		7	Steel Standards understanding
		8	Heat treatment of steels applied to make
		9	
		10	
21	Course Content:		

Course Content:

Week	Theoretical	Practice
1	Description of the material, mechanical, physical, chemical and thermal properties, classification of materials.	
2	Atomic structure, atomic models, atomic bonds.	

3	Unit cell, space lattice, Bravais lattices.	
4	Atomic filling factor, presence of concentrations of crystal structure, allotropy.	
5	Solidification and melting behavior, pure and alloy material to cool down.	
6	Dendritic structure, balance and the types of diagrams.	
7	Iron-carbon equilibrium diagram.	
8	Austenite, ferrite, pearlite, cementite, ledeburit concepts	
9	Midterm Exam	
10	Equilibrium diagram, critical temperatures, the contribution of alloying elements.	
11	Cast irons and uses	
12	Heat treatments applied to steels	
13	Hardness-making processes, Jominy test.	
14	Final Exam	

22	Textbooks, References and/or Other Materials:	1 - Assistant Professor Dr. A. Pasinli lecture notes, Izmir, 2010. 2 - Material Technology-I-Lecture Notes - Irfan AY, Balikesir, 2009. 3 - Machine Constr. Introduction, O. Bengisu, Birsen bookstore, Istanbul, 1978. 4 - Material Science, M. Yuksel, MM.Odası-Denizli, 1998. 5 - Materials Science and Engineering Materials, M. Erdogan, Nobel Publications, Ankara, 2000. 6 - Material Science, G.

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	10	1.00	10.00
Homeworks	6	1.00	6.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Others	0	0.00	0.00
Total Work Load			64.00
ECTS Credit of the Course			5.00

TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
Quiz	1	20.00
Final Exam	10	50.00
Midterm exams	1	10.00
Final Exams	10	0.00
Contribution of Term (Year) Learning Activities to Success Grade		50.00
Contribution of Final Exam to Success Grade		50.00
Total work load/ 30 hr		1.80
Measurement and Evaluation Techniques Used in the		

24 ECTS / WORK LOAD TABLE

25	**CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS**															
	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ÖK5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**