AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Material Science and Technology								
Course Code	AEK191		Couse Level		Short Cycle (Associate's Degree)				
ECTS Credit	3	Workload	75 *(Hours)*	Theory	2	Practice	0	Laboratory	0
Objectives of the Course	To teach the concepts of student material science and to gain the ability of establishing and evaluating the relationship between these principles and the behaviors of materials.								
Course Content	Material description and classification, Materials used in technical field, Metallic materials, Ceramic materials, Polymer materials, Composite materials, Atomic structure, Crystal defects, Alloys, Steels and standard displays.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation)								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	70

Recommended or Required Reading	
1	• William F. Smith; Malzeme Bilimi ve Mühendisliği; Literatür Yayıncılık; 9789758431618; Çev: Nihat G. Kınıkoğlu; 2005.

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction to materials science
2	Theoretical	Materials used in the technical field - Metallic materials - Ceramic materials - Polymer materials - Composite materials
3	Theoretical	Bonding mechanisms between atoms
4	Theoretical	Atomic patterns in solids
5	Theoretical	Atomic patterns in solids
6	Theoretical	Microstructure - Phase diagrams
7	Theoretical	Hardness and its relation to mechanical properties
8	Theoretical	Mechanical Properties Terminology
9	Theoretical	Mechanical Properties Terminology
10	Theoretical	Strength of materials
11	Theoretical	Breaking behavior of materials
12	Theoretical	Fatigue behavior of materials
13	Theoretical	Hardness of materials
14	Theoretical	Examine the Mechanical Properties of Materials
15	Theoretical	Examine the Mechanical Properties of Materials
16	Final Exam	Final Exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	3	42
Assignment	1	10	1	11
Midterm Examination	1	10	1	11
Final Examination	1	10	1	11
			Total Workload (Hours)	75
			[Total Workload (Hours) / 25*] = **ECTS**	3
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	Ability to design a system, part or process to meet desired requirements

2	Establishing a relationship between physical and mechanical properties of materials and structures;
3	Ability to select the material to be used in the technical field
4	
5	

Programme Outcomes *(Alternative Energy Sources Technology)*	
1	To have knowledge about basic science and technology.
2	To have knowledge about basic energy and alternative energy sources.
3	To have knowledge about basic electrical and electronic laws.
4	To have knowledge about the installation and operation of energy facilities.
5	Learning the methods of recycling of waste and use of energy.
6	To have experience in energy generation and project design.

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P1	5	5	5	5	5
P3	4	4	4	4	4
P4	3	3	3	3	3