Course name: MSE 203-Thermodynamics of Materials I				**Department:** Materials Engineering			
Semester	**Methods of Education**						**Credit (ECTS)**
	Lecture	Recitation/ Etud	Lab	Project/Field Study	Homework	Other	Total	6
3	42	8	0	0	10	0	60	
Language	English							
Compulsory/Elective	Compulsory							
Prerequisites	None							
Course Contents	Introduction and Definitions The First Law of Thermodynamics Thermochemistry The Second Law of Thermodynamics Auxiliary Functions Thermodynamics of Solutions							
Course Objectives	1. Explain terminologies, concepts, and relationships governing the laws of thermodynamics. 2. Give an understanding of the laws of thermodynamics, and of the equations and functions derived therefrom. 3. Give a basic understanding of the free energy, entropy, standard states, chemical and physical equilibria, and their relevance to materials processing.							
Learning Outcomes and Competences	The student that takes this course should: 1. Define equilibrium material properties for gases, solids and liquids, 2. Perform thermodynamically consistent energy balance calculations, 3. Use thermodynamics to discuss topics in materials phenomena.							
Textbook and /or References	1. Introduction to the Thermodynamics of Materials, By David R. Gaskell, Taylor & Francis, 2008. 2. Thermodynamics of Materials, Volume 1, By David V. Ragone, John Willey & Sons, 1995. 3. Stoichiometry and Thermodynamic Computations in Metallurgical Processes, by. Y.K. Rao, Cambridge University Press, 1985.							
Assessment Criteria			**If any, mark as (X)**	**Percentage (%)**			
	Midterm Exams		X	50			
	Quizzes						
	Homeworks		X	10			
	Projects						
	Term Paper						
	Laboratory work						
	Other						
	Final Exam		X	40			
Instructors	Assist. Prof. Dr. Metehan Erdoğan						
Week	**Subject**						
1	Introduction and Definitions						
2	The First Law of Thermodynamics						
3	The First Law of Thermodynamics						
4	The First Law of Thermodynamics						
5	The First Law of Thermodynamics						
6	Thermochemistry						
7	Thermochemistry						
8	The Second Law of Thermodynamics						
9	The Second Law of Thermodynamics						
10	The Second Law of Thermodynamics						
11	Auxiliary Functions						
12	Auxiliary Functions						
13	Thermodynamics of Solutions						
14	Thermodynamics of Solutions						

YILDIRIM BEYAZIT ÜNİVERSİTESİ

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