PURDUE UNIVERSITY. FORT WAYNE Civil and Me Engineering

Department of Civil and Mechanical

Course	ME 20000 – Thermodynamics I	
Type of Course	Required for ME and CE programs	
Catalog Description	First and second laws, entropy, reversible and irreversible processes, properties of pure substances, applications to engineering problems.	
Credits	3	
Contact Hours	3	
Prerequisite Courses	CHM 11500	
Corequisite Courses	MA 26100	
Prerequisites by Topics	Chemistry and Integral Calculus	
Textbook	<i>Fundamentals of Thermodynamics,</i> Borgnakke and Sonntag, Wiley & Sons, current edition.	
Course Objectives	To present the basic concepts of thermo dynamics and to help the students use the first and second laws of thermodynamics as they are applied to simple power and refrigeration cycles	
Course Outcomes	 Students who successfully complete this course will have demonstrated: An ability to understand the relationship between the transformation of energy and the status of matter. (1) An ability to apply the First Law to closed and open systems. (1) An ability to apply the Second Law to closed and open systems. (1) An ability to apply the concept of entropy and isentropic efficiency. (1) An ability to analyze and design simple thermodynamic processes or cycles. (1, 2, 3) 	
Lecture Topics	 Introduction/units/definitions Properties and property data Energy transfer/first law Control volume formulations Second law/irreversibilities/Carnot cycle Entropy/isentropic efficiencies 	

Computer Usage	Low
Laboratory Experience	None
Design Experience	Low
Coordinator	Hosni Abu-Mulaweh, Ph.D.
Date	26 February 2018