



Jordan University of Science and Technology
Faculty of Engineering
Biomedical Engineering Department

BME344 Thermodynamics
First Semester 2023-2024

Course Catalog
3 Credit Hours. 3 Credit hours (3 h lectures). State Properties, Phase Diagrams, Heat Transfer Principles.

Text Book	
Title	Thermodynamics an Engineering Approach
Author(s)	Gengel, A.Y., and Boles, A.M
Edition	7th Edition
Short Name	Textbook
Other Information

Instructor	
Name	Dr. Montasir Hader
Office Location	N1L2
Office Hours	Sun : 09:30 - 10:30 Sun : 11:30 - 12:30 Mon : 13:30 - 14:30 Tue : 09:30 - 10:30 Tue : 11:30 - 12:30 Thu : 09:30 - 10:30
Email	hader@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sun, Tue : 08:30 - 09:30 Room: LAB

Prerequisites		
Line Number	Course Name	Prerequisite Type
902030	MATH203 Ordinary Differential Equations	Prerequisite / Study
911020	CHEM102 General Chemistry (2)	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Introduction	
Week 2	Properties of pure substance	
Week 3	Energy, energy transfer and general energy analysis	
Week 4	Energy analysis of closed systems	
Week 5	Mass and energy analysis of control volumes	
Week 6	The second law of thermodynamics	
Week 7	Entropy	

Mapping of Course Outcomes to Program Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
To introduce the students to scope and domain of thermodynamics and where it can be applied [1SO1, 1SO2]	15%	
To understand the 1st and 2nd law of thermodynamics [1SO1]	20%	
To provide the students the knowledge of PVT relationship and thermodynamics properties [1SO1, 1SO2]	15%	
To be familiar with the calculations of work, heat, and changes in the energy of the system for a given process [1SO1]	15%	
To apply entropy balance for closed and open systems [1SO1, 1SO7]	15%	
To introduce the basic ideas behind heat engines and refrigerators [1SO1]	20%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
77.5	15					7.5

Evaluation	
Assessment Tool	Weight
Exam 1	30%
Exam 2	30%

Final	40%
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