



**JORDAN UNIVERSITY OF SCIENCE & TECHNOLOGY**  
**CHEMICAL ENGINEERING DEPARTMENT**  
**ME 321 Thermodynamics-I**  
**Semester**

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**Catalog Data-2013 :** 3 Credit hours (3 h lectures). Properties and behavior of a pure substance. First law and second law analysis applied to different systems and control volumes..

**Text Book(s):** Yunus A. Cengel, and Michael A. Boles, “Thermodynamics, an Engineering Approach” 8<sup>TH</sup> Edition

**Instructor:** \_\_\_\_\_

**Office Hours:** \_\_\_\_\_

**Pre/Co-Requisites:** Math 203

**Outcomes:** Introduce thermodynamic properties.  
Study the concepts of energy, work, and heat.  
Apply the first law of thermodynamics to a thermodynamic system  
Study the second law of thermodynamics applied to heat engines and heat pumps  
Apply entropy analysis to a thermodynamic system

**Topics Covered:** Ch.1: Introduction and Basic Concepts (HW: 58,92)  
Ch.2: Energy, Energy Transfer, and General Energy Analysis (HW: 27, 36, 48)  
Ch.3: Properties of Pure Substances (HW: 20, 47, 48, 54, 70, 78,115)  
Ch.4: Energy Analysis of Closed Systems (HW: 5, 13, 17, 33, 37, 51, 70, 131)  
Ch.5: Mass and Energy Analysis of Control Volumes (HW: 27, 43, 47, 60, 68, 81, 105, 111, 116)  
Ch.6: The Second Law of Thermodynamics (HW: 21, 40, 47, 72, 90, 99)  
Ch.7: Entropy (HW: 29, 43, 48, 75, 83, 84, 85, 90, 101, 102, 104, 111, 112, 118, 120, 131, 142, 143, 145)

**Evaluation:** 1<sup>st</sup> Exam on Tue 1/11/2016 at 4:15 30%  
2<sup>nd</sup> Exam on Sun 4/12/2016 at 4:15 30%  
Final Exam according to schedule 40%

**Relationship of the Course to ME Outcomes:**

ABET a – k	√	Level (L, M, H)	Mechanical Eng. Program Outcomes
a	√		a. Apply knowledge of mathematics, science, and engineering in practice.
b			b. Design and conduct experiments as well as analyze and interpret data.
c			c. Design a system, components, or process to meet desired needs.
d			d. Function on multidisciplinary teams.
e	√		e. Identify, formulate, and solve engineering problems.
f			f. Understanding of professional and ethical responsibility of an engineer.
g			g. Communicate effectively.
h			h. Broad education to understand the impact of engineering solutions in global and societal context.
i			i. Recognition of the need for, and possess the ability to engage in, lifelong learning.
j			j. Possess knowledge of contemporary issues.
k			k. Use the techniques, skills, and modern engineering tools necessary for engineering practice.

**L: Low, M:Medium, H: High**

**ABET Category:**            Engineering Science    3            Credits  
    Engineering Design    0            Credits

**Prepared By:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Rules and notes:**

- 1) Never come late to the classroom, you will disturb your mates and your instructor if you do so and will be considered absent.
- 2) Turn OFF your cell phones during the class.
- 3) **DO Not TALK** during the class please, unless you have a question for me.
- 4) Make up exams are not held without an official signed and approved excuse from the **Department Chairman**. Please understand that this is a university law and I have no control over it.
- 5) Office hours are the hours I dedicate for you to ask me. If you think they do not suit you, then we can still arrange for a time of our convenience by sending an e-mail to me (you should expect an approval from my side).
- 6) The exams specified on the course syllabus are not subject to negotiations or change once approved by you **TODAY**. It is your responsibility to inform the other instructors about your assigned exams.
- 7) Files will be posted on **e-learning** and you are only allowed to contact me through the **e-learning email**. Contacting me through **Facebook** is prohibited.
- 8) You are not allowed to post my **emails** content on **Facebook** without my **prior permission**.