



JORDAN UNIVERSITY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF MECHANICAL ENGINEERING
ME322: Thermodynamics-2
_____ Semester

Catalog Data- 2013: (3-Hours). Availability and Irreversibility. Vapor and air-standard power and refrigeration cycles. Thermodynamic relations. Ideal and real mixtures and solutions. Chemical reactions and combustion.

Text Book(s): Cengel, Y.A. and Boles, M.A., Thermodynamics: An Engineering Approach, McGraw-Hill, latest edition.

References: Sonntag, R.E., Borgnake, C. and Van Wylen, G.J., Fundamentals of Classical Thermodynamics, John Wiley.

Instructor: _____

Class Schedule: _____

Office Hours: _____

Pre/Co-Requisites: CHE340: Thermodynamics
ME321: Thermodynamics-1

Objectives:

- 1-Develop the student's ability to analyze thermodynamic systems
- 2-Develop the student's ability to relate theory to practical problems
- 3-Give the students a working knowledge of analysis in diversified areas such as
Engines, Refrigeration, Gas mixtures, Air Conditioning, and Combustion.

Topics Covered:

- 1- Introduction (0.5 week)
- 2- Exergy..... (3 weeks)
- 3- Gas power cycles (2 weeks)
- 4- Vapor and combined power cycles (2.5 weeks)
- 5- Refrigeration cycles (1.5 weeks)
- 6- Thermodynamic property relations (1.5 weeks)
- 7- Gas mixtures (2.5 weeks)
- 8- Gas-vapor mixtures and air-conditioning (1.5 weeks)
- 9- Chemical reactions (1 week)

Computer Usage: EES commercial code that comes with the textbook will be introduced to the students. Homework problems, on a weekly basis, will be assigned to the students and students are urged to use EES to check their final answers.

Design Activities/Project(s):

Lab. Experiment(s):

Scientific Visit(s):

Evaluation:	1 st Exam	25%	(date:31-10-2016, time:3:15-4:15pm)
	2 nd Exam	25%	(date:5-12-2016, time:3:15-4:15pm)
	HW's.	10%	
	Final Exam	40%	

Relationship of the Course to ME Outcomes:

<enter \checkmark in the appropriate filed at the 2nd column in the table >

ABET a – k	\checkmark	ME Program Outcomes
a	\checkmark	a. Apply knowledge of mathematics, science, and engineering in practice.
b		b. Design and conduct experiments as well as analyze and interpret data.
c	\checkmark	c. Design a system, components, or process to meet desired needs.
d		d. Function on multidisciplinary teams.
e	\checkmark	e. Identify, formulate, and solve engineering problems.
f		f. Understanding of professional and ethical responsibility of an engineer.
g	\checkmark	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. Adhere to safety rules and regulations.

ABET

Category:

Engineering Science	80%	Credits
Engineering Design	20%	Credits

Prepared By: _____

Date: _____