

KUWAIT UNIVERSITY
College of Engineering & Petroleum
CHEMICAL ENGINEERING DEPARTMENT
FIRST SEMESTER 1999 - 2000
Chemical Engineering Thermodynamics ChE 321

Prerequisites : Engineering Thermodynamics I (600-208) & Physical Chemistry (0640-214/215)

Instructor : *Prof. M. R. Riazi*

Office: Chem. Eng. Depat., Bldg. 8 Kh., 5th floor,
 Phone 5772 (Dept. Direct # 4817662).

Office Hours : Saturday, Sunday, Monday & Wednesday
 (10:00 – 11:00) or by Appointment.

Assistant : *Engr. Bader Masair*

(Office : Bldg. 8 Kh., 4th Floor, Computer Room, Ext. 5615)
 (Sat. 9:00 – 10:00) Sun. 8:00- 9:30, Mon. 9:00 – 10:00 & Tues. (9:30 – 11:00)

Class Hours & Place: Saturday, Monday, Wednesday (11:00 – 11:50)
 Building 6 Kh., Room # 305

Course Objective:

The objective of this course is to develop the necessary thermodynamic tools for calculating the thermodynamic properties of pure fluids and mixtures, phase equilibria and chemical reaction equilibria. This course is a continuation of Engineering Thermodynamics I, hence the relationship between the material of this course and the first and second laws of thermodynamics will be stressed. The methods and concepts covered in this course find a wide application in the design and analysis of most process equipment. For example, the design and operation of separation equipments such distillation and absorption columns require quantitative estimates of equilibrium properties of fluid mixtures.

Basic Text Book: “INTRODUCTION TO CHEMICAL ENGINEERING THERMODYNAMICS”

Smith, J. M.; van Ness, H.C. and M.M. Abbott, 5th Edition, McGraw Hill (1996).

Also the 4th Ed. (1987) will be useful.

Supplementary Reference: “CHEMICAL ENGINEERING THERMODYNAMICS”

Daubert, T.E., McGraw-Hill (1985)

Grading: The course grade will be based (approximately) on the following considerations.

Midterm Exams (2 out of 3) -	40%
Quizzes -	5%
Homeworks -	10%
Class Attendance - (at least 80% attendance)	5%
Final Exam -	40%

Course Outline

Week of	Subject	Chapter
Sept. 6-8	Introduction Review of Thermodynamics I	1, 2, 5, 4
Sept. 11-15 Sept. 18-22	Volumetric Properties of Pure Fluids	3
Sept. 25-29 Oct. 2-6	Thermodynamics Properties of Fluids	6
Oct. 9-13 Oct. 16-20	Solution Thermodynamics : Theory	10
Oct. 23-27 Oct. 30 – Nov. 3 Nov. 6-10	Solution Thermodynamics : Theory	11
Nov. 13-17 Nov. 20-24	VLE at Low to Moderate Pressures	12
Nov. 27 – Dec.1	Thermodynamic Properties and VLE from Equations of State	13
Dec. 4-8	Chemical - Reaction	15
December 11	Review	
December 25, 1999	Final Exam	

EXAM DATES :

Exam I : Wednesday, September 29, 1999 [Ch. 3]

Exam II : Wednesday, October 20, 1999 [Ch. 6]

Exam III : Wednesday, October 3, 1999 [Ch. 10]

Final Exam : Wednesday, December 1, 1999

All Exams will be held in the class Room. Bldg. 6 Kh, R # 305