



Course Weekly Outline

Course Instructor	Hassan Sabeeh Jabur				
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Title	Physical chemistry II				
Course Coordinator					
Course Objective	Introduction to thermodynamic science in term of the second law of thermodynamic, Introduction to entropy, free energy and its dependence on thermodynamic system parameters, added to that Introduction to third thermodynamic law and study both of chemical equilibrium and phase rule.				
Course Description	The course includes three parts: first part is clarification of second thermodynamic law in term of Carnot cycle, changes entropy for thermodynamic systems, and exercises that explain the mathematical calculation for this part. The second part is includes on free energy and its relationship with entropy, and introduction to third law of thermodynamic. The third part focuses on both chemical equilibrium and phase rule for chemical system.				
Textbook	Thermo Dynamic Fundamentals Dr. Falah Hassan Physical chemistry 6 th Edition, 1998, Oxford University Press Peter Atkins and Julio de Paula				
References	Physical chemistry 9 th Edition, 2010, Oxford University Press Peter Atkins and Julio de Paula Thermodynamics and Chemistry 2 nd Edition, Prentice-Hall, Inc. Howard DeVoe				
Course Assessment	Term Tests	Laboratory	Quizzes	Final lib.	Final Exam
	27%	13%	---	20%	40%
General Notes					



Course weekly Outline

week	Date	Topics Covered	Lab. Experiment Assignments	Notes
1	2019/2/19	Second law of thermodynamic	Review on second semester experiments	
2	2019/2/26	Entropy Entropy change in heating process	Determine of Dropping constant of burette	
3	2019/3/ 5	Change in entropy in isothermal process	distribution study of iodate between water and ether	
4	2019/3/ 12	Change in entropy in adiabatic process	distribution study of iodate between water and CCl ₄	
5	2019/3/ 19	Entropy changes for a mixture of ideal gases	Adsorption study of acetic acid on charcoal	
6	2019/3/ 26	Application of second law in thermodynamic (Carnot cycle efficient)	Adsorption study at different temperature	
7	2019/4/ 2	The third law of thermodynamics	Determine molecular weight by raising in boiling points	
8	2019/4/ 9	Gibbs free energy	Calculation of calorimeter constant	
9	2019/4/ 16	Fundamental equation for a closed system	Calculation neutralization heat for reaction of nitric acid and sodium hydroxide	
10	2019/4/ 23	Fundamental equation for a closed system	Determine of dissolving heat	
11	2019/4/ 30	Phase equilibria	Determine molar mass for styrene polymer by viscosity calculation	
12	2019/5/ 7	solution	Determine heat by electric method	
13	2019/5/ 14	Colligative properties of solution		
14	2019/5/ 21	Chemical equilibrium		
15	2019/5/ 28	Statistical thermodynamics		

Instructor Signature:
Haider R. Saud

Head of department:
Prof. Asist. Dr. Riyadh J. Nahi

Dean Signature: