MUTAH UNIVERSITY
Faculty of Engineering
Department of Chemical Engineering

Industrial Physical Chemistry

COURSE SYLLABUS

Course Code	Course Name	Credits	Contact Hours
0404213	**Industrial Physical Chemistry**	**3**	

INSTRUCTOR/COORDINATOR	
Name	**Prof. Adnan Al-Harahsheh**
Email	Adnan@mutah.edu.jo
Website	

TEXTBOOK
Peter Atkins, "**Physical Chemistry** " 8 Edition, Oxford press 2006
Other Supplemental Materials
PPT notes

SPECIFIC COURSE INFORMATION
A. Brief Description of the Content of the Course (Catalog Description)
Physical chemistry is a combined science of physics, chemistry, thermodynamics, electrochemistry, and quantum mechanics. It functions to provide molecular-level interpretations of observed macroscopic phenomena. Typically, changes in temperature, pressure, volume, heat, and work of systems in the solid, liquid, and or gas phase are correlated to microscopic atomic and molecular interactions.
B. Pre-requisites (P) : 0404112
C. Course Type (Required or Elective)
Required (Compulsory department course)

SPECIFIC GOALS

A. Specific Outcomes of Instruction

The main theme of this course is to introduce the main physical chemistry concepts that will lay the foundation for the chemical Engineering students to understand thermodynamics in later courses. Some Chemical engineering applications will be studied in this course.

B. Student Outcomes Addressed by the Course

1	2	3	4	5	6	7				
✓										

BRIEF LIST OF TOPICS TO BE COVERED

List of Topics	No. of Weeks	Contact Hours
Introduction to physical chemistry	1-2	6
Perfect gas	3	3
Real gas	4	3
Energy and the first law of thermodynamics	5-6	6
Work & Heat	7	6
Enthalpy	8-9	6
Thermochemistry	10	3
Second law (Reaction spontaneity and the direction of thermodynamic change)	11-12	6
Phase Transformation of pure substance	13	3
Phase Diagrams	14-16	6
Total	16	48

METHODS OF ASSESSMENT

No.	Method of assessment	Week and Date	%
1	Home works , quizzes . discipline	Through semester	**30**
2	Mid Exam	Middle of semester	**30**
3	Final examination	End of semester	**40**
Total			**100**