



Department	Pharmacy
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Course Name	General Chemistry For engineering	Course No.	0120143
Prerequisite	-	Credit Hours	3
Number & date of course plan approval		Brief Description	See form QF01/0409

(Course Objectives)	<ol style="list-style-type: none"> 1- An introductory course and is aimed specifically at the needs of students in the pharmacy, nursing, and science. 2- Achieved an understanding of the basic structure of the atom, and how that structure relates to the chemical and physical properties of elements and their compounds. 3- Learned the basic calculations involved in predicting the amount of reagent needed for a reaction and the amount of product that can be obtained from reaction. 4- Become familiar with commonly encountered units of measurements specially those describing solutions and know how to prepare and work with such solutions. 5- Attained an understanding of the major types of chemical bonding and how that relates to the structure of compounds. <ol style="list-style-type: none"> 1. To enhance the ability of subjects related to basic knowledge in kinetics and equilibrium
Course Topics	<ol style="list-style-type: none"> 1. Introduction: Matter and Measurement 2. Atoms, Molecules, and Ions 3. Stoichiometry: Calculations with Chemical Formulas and Equations 4. Aqueous Reactions & Solution Stoichiometry. 5. Thermochemistry. 6. Basic Concepts of Chemical Bonding. 7. Molecular Geometry and Bonding Theories. 8. Chemical kinetics 9. Chemical equilibrium.



Text Books	Chemistry, The Central Science, Brown , LeMay , Bursten and Murphy , Prentice Hall , 11 th Edition (2009)			
References	<ol style="list-style-type: none"> 1- General chemistry, Ebbing and Gammon, Houghton Mifflin , 9th edition, 2009. 2- Chemistry, change, McGraw Hill, 9th edition, 2007. 3- Chemistry, Zumdahl and Zumdahl, Houghton Mifflin, 7th edition, 2007. 4- Chemistry, The Molecular Nature of Matter and Change, Silberberg, McGraw Hill, 3rd edition, 2003. 			
Grade Determination	1 st Exam=25% 2 nd Exam=25% Final Exam= 50%	(Practical Course Grade Determination)	Course Work =50% (Reports, Term Papers, Quizes) Final Exam = 50%	
Course Outline				
Week	Hours	Subjects	Chapters in Textbook	Notes
01	1 1 1	- Introduction - The study of chemistry. - Properties of Matter.	Ch# 1	
02	1 1 1	- Units of measurement. - Uncertainty in measurement. - Dimensional analysis	Ch# 1	
03	1 1 1	-The atomic theory of matter. -The discovery of atomic structure. -The modern view of atomic structure.	Ch#2	
04	1 1 1	-The Periodic Table. -Molecules and molecular compounds. -Ions & Ionic compounds.	Ch#2	
05	1 1 1	-Chemical equations and patterns of chemical reactivity. -Atomic and molecular weights and the mole. - Empirical formulas from analyses	Ch#3	
06	1 1 1	- Quantitative information from balanced equations. -Limiting reactants. -First Exam.	Ch#3	
07	1 1	- Solution composition and Properties of solutes in aqueous solution. -Acids, bases, and salts.	Ch#4	



	1	-Ionic equations.		
08	1	-Metathesis reactions.	Ch#4	
	1	- Introduction to oxidation - reduction reactions.		
	1	-Solution Stoichiometry and chemical analysis		
09	1	- The nature of energy and 1 st law of thermodynamics.	Ch# 5	
	1	- Enthalpy		
	1	- Enthalpies of reactions		
10	1	- Calorimetry	Ch#5	
	1	- Hess's law		
	1	- Enthalpies of formation		
11	1	- Electron configuration and the periodic table.	Ch#6	
	1	-Lewis symbols and the octal rule.		
	1	- Ionic bonding and size of ions.	Ch#8	
12	1	- Covalent bonding, bond polarity and electronegativity.	Ch#8	
	1	-Drawing Lewis structures and resonance structures.		
	1	- Exceptions to the octet rule, strengths of covalent bonds, and oxidation numbers.		
13	1	- Second Exam	Ch#9	
	1	- Molecular Shapes, the VSEPR theory, polarity of molecules, and covalent bonding and orbital overlap.		
	1	- Hybrid orbitals, multiple bond, and molecular orbitals.		
14	1	- Factors that affect reaction rates.	Ch# 14	
	1	- Reaction rates, and the rate law.		
	1	- Concentration and rate, and the change of concentration with time		
15	1	- Temperature and rate and reaction mechanisms catalysis.	Ch#14	
	1	- the concept of equilibrium and equilibrium constant.		
	1	- Heterogeneous equilibrium	Ch# 15	
16	1	- Calculating equilibrium constant.		
	1	- Application of equilibrium constant. Le Chatelier's principle		



Course Detailed Description – Procedures of the Course Plan Committee /Faculty of Pharmacy	QF02/0408–1.0
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	1	- Final Exam		
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Approved by Dept. Chair		Date of Approval	
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Extra Information: (Updated every semester and filled by course instructor)

Course Instructor	
Office No.	
Extension Email	
Office hours	