



Philadelphia University
Faculty of Science
Department of Basic Sciences
Second Semester, 2009/2010

<u>Course Syllabus</u>	
Course code: 0212101	Course Title: General Chemistry I
Course prerequisite (s) and/or corequisite (s):	Course Level: 1
Credit hours: 3	Lecture Time: 8:10- 9:00 (S, Tu, Th) 12:45- 2:15 (M, W)

<u>Academic Staff Specifics</u>			
Office Hours	Office Number and Location	Rank	Name
12-13, S, Tu, Th 11:30-12:30 M, W	Faculty of Science (1018)	Assistant Prof.	Dr. Nader Robin Al Bujuq

Course module description:

Introduces the fundamental theories of chemistry, such as atomic structure, stoichiometry, chemical bonding, mole concept, periodic table, kinetic molecular theory, energy and equilibria, gas laws, liquids and solids, oxidation and reduction, solutions, acids and bases.

Course module objectives:

This module presents a basic introduction to chemical concepts and the development of stoichiometric principles. It also provides the student with a fundamental store of chemical information and an understanding of the need for theory, then the theme centers on the development of theoretical explanations of observed facts by introducing the student to the concept of electronic structure, and chemical bonding. Finally it focuses on the physical properties of substances

Course/ module components

Books (title , author (s), publisher, year of publication)

Text book

Title: *General Chemistry, The essential concepts*, 5th edition

Author : **Raymond Chang**

Publisher: Mc Graw Hill 2008

ISBN: 978-0-07-110226-1

Support material (s) (Handouts, models).

Teaching methods:

Lectures, discussion groups, tutorials, problem solving, debates, etc.

Learning outcomes:

Knowledge and understanding

1- Have an understanding of chemical calculations
(aspects of stoichiometry using the mole unit).

2- Understand electronic structure of atoms and molecules including types of bonds in chemistry and the experimental facts behind that.

3- Cognitive skills (thinking and analysis).

To identify and solve problems. work with given information and handle chemical calculations based on chemical equations. And ability to differentiate between acids and bases.

4- Communication skills (personal and academic).

Encourage the students to be self starters (creativity, decisiveness, initiative) and to finish the chemical problems properly (flexibility, adaptability). Also to improve general performance of students through the interaction with each other in solving different chemical problems.

Practical and subject specific skills (Transferable Skills).

Gaining knowledge and experience of working with relevant modern laboratory equipment.

Assessment instruments

Quizzes.

Home works

Final examination: 50 marks

<u>Allocation of Marks</u>	
Mark	Assessment Instruments
15	First examination
15	Second examination
50	Final examination: 50 marks
20	3 short Quizzes and Home works, Reports
100	Total

Course/module academic calendar

Basic and support material to be covered	week
SI units measurement and significant figures	(1)
Mole concept	(2)
Measuring moles of atoms and molecules , formulas	(3)
Chemical reactions and mole concept, limiting reactants, percentage composition	(4)
Reactions in solution and their stoichiometry	(5)
Electronic structure of atoms	(6) First Exam
Electronic structure and periodic table.	(7)
Periodic table and some properties of elements	(8)
Periodic table and some properties of elements	(9)
Basic concepts of chemical bonding	(10)
Basic concepts of chemical bonding, Molecular shapes ,VSEPR	(11) Second Exam
Polarity of molecules and molecular structure Hybrid Orbitals ,Multiple bonds	(12)
Acids& Bases, Bronsted-Lowry acids and bases, ways of expression concentration	(13)
pH scale, strong acids and bases, weak acid and bases, Lewis acids and bases	(14) Final Exam

