

**Course Specifications**

<b>University</b>	Beni-Suef
<b>Faculty</b>	Pharmacy
<b>Dept.</b>	Pharmaceutical Analytical Chemistry

**1-Course Info.**

**Programme(s) on which the course is given:** Bachelor of Pharmaceutical sciences

**Course Name and code No.:** General and Physical Chemistry - 601

**Academic year/ Level:** first year/ first semester - 2017-2018

**Credit hours:** Lecture (2) hour + Practical (1) hour

**2-Overall Aim of the Course**

To provide students with knowledge of basic inorganic and physical chemistry necessary for understanding next chemistry courses (qualitative inorganic analysis, quantitative analytical chemistry, organic chemistry and physical pharmacy)

**3-Intended Learning Outcomes of the course (ILOs)****a. Knowledge and understanding**

by the end of this course the student should be able to demonstrate comprehensive and detailed knowledge and full understanding of

- a.1. Quantum theory and electronic structure of atoms.
- a.2. Periodic table and periodic relations among elements.
- a.3. Bonding and structure, besides covalent bonding orbital theory.
- a.4. Calculations with chemical formulas and equations.
- a.6. Gases and related laws.
- a.7. Thermo chemistry.
- a.8. Solutions and related laws.
- a.9. Chemical kinetics.
- a.10. Chemical equilibrium

**b. Professional and Practical Skills**

by the end of this course the student should be able to:

- c.1. Calculate heat of combustion
- c.2. Determine viscosity of liquids
- c.3. Investigate formulae of hydrate
- c.4. Solve different problems of different laws of physical chemistry

**c. Intellectual Skills**

by the end of this course the student should be able to:

- b.1. Draw the Lewis structure of different molecules
- b.2. Predict the geometry of different molecules
- b.3. Select the proper type of hybridization
- b.4. Write the electronic configuration of different atoms and molecules
- b.5. Select the correct type of bonds in different types of molecules
- b.6. Identify different orders of chemical reactions
- b.7. Apply laws of gases
- b.8. Differentiate different behavior of solids , liquids and gases
- b.9. Apply laws of distribution

**d. General and Transferable Skills**

by the end of this course the student should be able to:

- d.1. Develop problem solving skills.
- d.2. Learn how to work as part of a team for solving the problem ahead of them
- d.3. Learn to communicate orally with others (lecturer, instructor, colleagues)
- d.4. Handle equipment and poisonous chemicals properly and avoid their hazards.
- d.5. Develop understanding and tolerance for personal differences

**4-Course Contents**

Topics	No. of hours	
	Tutorial / Practical	Lecture
➤ Quantum theory and Atomic structure		2
➤ Periodic table and periodicity		2
➤ Bonding and structure		4
➤ Covalent bonding orbitals		4
➤ standard international units		2
➤ States of the matter		2
➤ Solutions		4
➤ Chemical equilibrium and distribution law		2
➤ Chemical kinetics		2
▪ Units of Measurements	1(2)	
▪ Basic Laboratory Techniques and Laboratory rules.	1(2)	

4-Course Contents		
Topics	No. of hours	
	Tutorial / Practical	Lecture
▪ Basic Mathematical Concepts.	1(2)	
▪ Calculations using The mole Concept.	1(2)	
▪ Determination of Emperical formula and Molecular formula of Compounds.	1(2)	
▪ Evaluation of Gas Law Constant.	1(2)	
▪ First practical exam	1(2)	
▪ A-Estimation of Heat Changs during a reaction: Heat of Combustion of an alcohol.	1(2)	
▪ B- Determination of density of a liquid.		
▪ Formula of a hydrate.	1(2)	
▪ Effect of Concentration on the Rate of a reaction.	1(2)	
▪ Revision	1(2)	
▪ Final practical exam	1(2)	
Total	12 (24)	24

#### 5- Teaching and learning Methods

- Lectures
- Practical training in laboratory
- Class activity
- Home assignments

#### 7- Student Assessment Methods

**a-Methods**

- a. **Practical exam** to assess professional and practical skills
- b. **Periodic exams** to assess understanding and intellectual skills
- c. **Written exam** to assess knowledge, understanding and intellectual skills

**b- Assessment Schedule**

Assessment 1: practical exam 1 – 5<sup>th</sup> week

Assessment 2: practical exam 2 – 12<sup>th</sup> week

Assessment 3: final written exam – 14<sup>th</sup> week

**c- Weighting of Assessment Marks**

Practical exams: 50 marks (33.33%)

Final written exam: 100 marks (66.66%)

**8-List of References****a. Notes**

**Course notes:** prepared by staff members of the teaching department

**b. Mandatory Books**

N/A

**c. Suggested Books**

- Physical Chemistry, Prentice Hall, Inc., USA, 2<sup>th</sup> ed., 2001, G. K. Vemulapalli
- Modern Inorganic Chemistry, S. Chand & Company, 2<sup>nd</sup> ed., 2002, R. D. Madan

**d. Journals**

- [www.chemweb.com](http://www.chemweb.com)
- [www.chemistry.com](http://www.chemistry.com)

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