Prince Sultan University
College/ Department
Second Semester 2017

INSTITUTIONAL COURSE SYLLABUS TEMPLATE

Course Code: CHM101	Course Title: General Chemistry
Course Instructor: Ihab Shawish	Email: ishawish@psu.edu.sa
Credit Hours: 4 (3 theory +1 Lab.)	Lectures: 3 hrs weekly
Office Hours: 5 hrs weekly as listed in my schedule	
Office: 317-Old Building	

<INSERT MISSION OF DEPARTMENT OR PROGRAM>

I. Course Description:

Chemistry 101 is an introductory course in general chemistry. The course governs basic concepts and terminology in chemistry to help students use the knowledge of chemistry in engineering applications such as product design, and to enhance investigative and observational skills and problem solving strategies and techniques

II. Course Learning Outcomes:

Skills	Course Learning Outcomes	Measured by
Knowledge (Recall& Use)	1. Recognize the basic concepts, theoretical fundamentals, and the related experimental applications in chemistry.	Two Major exams + Quizzes + Handworks + + Final Exam
Comprehension (Understanding)	2. Predict the solution of the problem, apply suitable strategy to reach the solution, test the correctness of the solution, and interpret the results.	Two Major exams + Quizzes + Handworks + + Final Exam

	3. Apply the principles of stoichiometry in different types of chemical reactions including reactions of aqueous solutions. 4. Distinguish the types of chemical bonding. And estimate the Lewis structure and molecular geometry of different chemical compounds. 5. Realize the main principles of equilibrium, kinetics and thermochemistry. 6. Differentiate between the major classes of organic compounds and understand the IUPAC nomenclature of simple organic compounds.	
Interpersonal	7. Use different experimental techniques and work within a group in the laboratory, understand the objectives of the experiments, analyze data, and interpret results for deep understanding of the theoretical topics.	Laboratory reports + Laboratory quizzes + Laboratory theoretical final exam + Laboratory practical final exam.

III. Course Content or your weekly schedule (Specific course topics to be covered within the semester).

Topics	No. of Weeks	Contact Hours
Introduction to Chemistry Science: The Study of Chemistry, scientific measurements, the prosperities of matter, uncertainty in measurements, using Units and solving problems.	1	3
Atoms, Molecules, and Ions: The Atomic theory, the Structure of atom, atomic number, mass Number, and isotopes, the Periodic Table, molecules and molecular compounds, ions and ionic compounds	2	6
Stoichiometry: Molecular and Formula Masses, percent composition of compounds, chemical equations, the mole and molar masses, composition analysis, calculation with balanced chemical equations, limiting reactants	2	6

Aqueous Solutions: General properties of aqueous solutions, precipitation reactions, acid base reactions, concentration of solutions, aqueous reactions and chemical analysis	2	6
Thermochemistry: Energy and energy changes, introduction to thermodynamics, enthalpy, calorimetry, Hess's law, standard enthalpies of formation.	1	3
Gases: Properties of gases, the gas laws, the ideal gas equation, gas mixtures.	1	3
Electronic structure of atoms: Quantum numbers, atomic orbitals, electron configuration	1	3
Chemical Bonding: Ionic bonding, covalent bonding, electronegativity, and polarity drawing Lewis structures, and molecular geometry (VSEPR) theory.	1.5	4.5
Intermolecular forces.	0.5	1.5
Chemical Kinetics: Reaction rates, the rate order and the rate law	1	3
Organic Chemistry: Classes of organic compounds, Naming, structural formulas of organic compounds, addition and substitution reactions, polymers.	2	6

IV. Course Components (Indicate the total contact hours within the semester).

Component	**Contact Hours**
Lecture	45
Tutorial	5
Practical/Field	39

V. Teaching Strategies (Indicate the teaching and student activities to be used to develop the kinds of learning involved in each learning domain. See the Faculty Guidelines for Conditions for Different Domains of Learning on Pg. 6 & 7. Also, research specialized Information about Best Teaching Practices for the particular course/field).

Domain	**Strategy**
Knowledge	
Cognitive Skills	
Interpersonal Skills & Responsibility	
Numerical & Communication Skills	

VI. Course Requirements:

- Two Major exams
- Quizzes
- Handworks
- Laboratory reports
- Laboratory quizzes
- Laboratory theoretical final exam
- Laboratory practical final exam
- Final Exam

VII. Student Assessment:

4 Credit Hours 100%: (3 Theory 75% + 1 Lab. 25%

CHEM. 101 (Theory)				
First	***Second***	***Quizzes and Homework***	***Attendance***	***Final***
15	***15***	***3***	***2***	***40***
Total: 75 %				

Reports	***Final (Theory + practical)***
10	***15 (8 +7)***

B. Schedule of Assessment:

Assessment	Assessment Task	Date	Proportion of Final Assessment
1	Major 1	29 March 2017 EXAM HALL 4:30-6:30	15%
2	Major 2	23 April 2017 EXAM HALL 5:30-7;30	15%
3	Final Exam	3 June 2017	40%
4	Home works + Quizzes	During the semester	3%
5	Attendance	During the semester	2%
6	Lab. Reports	At the end of experiment (weekly)	10%
7	Lab. Practical Exam	At The end of the semester	7%
8	Lab. Theoretical Exam	At The end of the semester	8%

VIII. Learning Resources

A. References:

Textbook: Chemistry 9th edition by Steven Zumdahl and Susan Zumdahl
ISBN: 978 1 4737 0753 5

Lab. Manual: General chemistry lab. Manual by: Ihab Shawish
ISBN: 978 603 01 2160 1

Reference: Chemistry, 3th Edition; By Julia Burdge.
ISBN: 978 1 259 08077 7

B. Facilities Required - lecture room, computing resources, laboratories.

C. Learning Management System – website: https://lms.psu.edu.sa/