Course Specification
(Bachelor)

Course Title:	General Chemistry I
Course Code:	CHM 0101
Program:	BSc in Physics and BSc in Physics of Renewable Energy and Environment
Department:	Chemistry
College:	College of Science
Institution:	Majmaah University
Version:	1
Last Revision Date:	12/10/2024

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: 3 (3,0,0)

2. Course type

A.	☐ University	☒ College	☐ Department	☐ Track	☐ Others
B.	☒ Required		☐ Elective		

3. Level/year at which this course is offered: (……2nd Level/ 1st Year ….)

4. Course General Description:

This course is an introductory chemistry course designed to prepare students for college-level chemistry courses.

5. Pre-requirements for this course (if any)**:**

none

6. Co-requisites for this course (if any)**:**

none

7. Course Main Objective(s):

The course covered the general concepts of chemistry and its application which includes matter and its properties, the periodic table, chemical bonding, the mole concept and mass relationships in chemical reactions, physical properties of solutions, gases and their properties, thermochemistry, chemical kinetics and chemical equilibrium

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3	100%
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	**45**
2.	**Laboratory/Studio**	
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		Total

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Recognize the fundamental concepts in chemistry, (mole, state of matter, atomic structure and the bases of units and measurements)	**K1**	Lectures Solving problems Video tutorial Discussion	Midterm exams Periodical short quizzes Discussion and team work
1.2	Identification the bases of chemical kinetic and chemical kinetic	**K1**	Lectures Solving problems Video tutorial Discussion	Midterm exams Periodical short quizzes Discussion and team work
1.3	Identification of ionic and covalent bonds	**K1**	Lectures Solving problems Video tutorial Discussion	Midterm exams Periodical short quizzes Discussion and team work
1.4	Describe the basic concepts and laws in chemistry (gas laws, thermodynamics' laws, chemical bonds and solutions)	**K1**	Lectures Solving problems Video tutorial Discussion	Midterm exams Periodical short quizzes Discussion and team work

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
2.0	**Skills**			
2.1	Demonstrate the ability to calculate the problems related to chemistry	**S1**	Lectures Discussion	Class Participation Presentation Essay Question
2.2	Develop creative solutions to current issues and practice exercises in chemistry	**S2**		
	Communicate with teacher, ask questions, solve problems, and use computers	**S4**	Lectures Discussion	Class Participation Presentation Essay Question
3.0	**Apply the appropriate mathematical formula to solve problems relating to course concept**			
3.1	Show the ability to deal with difficult situations and work under pressure.	**V1**	Exercises Problem solving Essay questions	Write reports and power point presentation Exercises related to specific topics
3.2	Operate questions during the lecture, work in groups, and communicate with each other.	**V2**		
...				

C. Course Content

No	List of Topics	Contact Hours
1.	Matter and Measurements	4
2.	Atoms, Molecules and Ions	4
3.	Mass Relationships in Chemical Reactions	4
4.	Reactions in Aqueous Solutions	5
5.	Gases	5
6.	Thermochemistry	5
7.	Chemical Bonding	5
8.	Physical properties of solutions	5
9.	Chemical Kinetics & Chemical Equilibrium	4
10.	Acids and Bases	4
Total		**45**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Mid-term exam	6-7 weeks	30%
2.	Activity, Assignment and quizzes.	During the semester	20%
3.	E- Test	10 weeks	10%
4.	Final exam	End of semester	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	1. General Chemistry: The Essential Concepts (2013), Raymond Chang and Kenneth Goldsby, McGrawHil, ISBN 10: 0073402753, 13: 9780073402758 2. Chemistry (10th edition) (2010), Raymond Chang, McGrawHil, ISBN 978-007-127220-9 General Chemistry: Atoms First (International Edition) (2009),McMurry, John E.; Fay, Robert C, PIE (PS), ISBN 10: 0321571630
Supportive References	J. Organic Chemistry J. Analytical Chemistry
Electronic Materials	http://www.chemistry.ohio-state.edu
Other Learning Materials	Tutorial CD, Bb, power point

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classrooms are available with smart boards and internet
Technology equipment (projector, smart board, software)	Computers and internet are available for online study and video tutorials.
Other equipment (depending on the nature of the specialty)	The course is only theoretical part.

F. Assessment of Course Quality

Effectiveness of teaching	students	DIRECT
Effectiveness of Students assessment	students	INDIRECT
Quality of learning resources	students	DIRECT
The extent to which CLOs have been achieved	Staff members	DIRECT

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**CHEMISTRY DEPARTMENT COUNCIL**
REFERENCE NO.	**16**
DATE	**30/12/2024**