هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	General Chemistry II
Course Code:	CHEM205-3
Program:	Bachelor of Science in Chemistry
Department:	Department of Physical Sciences
College:	College of Science
Institution:	Jazan University
Version:	TP-153 (2024)
Last Revision Date:	31 January 2024

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (3hrs)

2. Course type

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

3. Level/year at which this course is offered: (3rd Level--- 2nd Year.)

4. Course general Description:

Course title	Course code	Contact Hours			Credit Hours	Year	Level	Prerequisite	Corequisite
		Lec	Tut	Lab					
General Chemistry II	CHEM205-3	3	0	0	3	2nd	3rd	CHEM102-3	CHEM207-1

In this course, the student completes the general chemistry course (CHEM 102) and continues to learn about the principles of general chemistry, especially the principles of physical chemistry.

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

CHEM102-3

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

CHEM207-1

7. Course Main Objective(s):

1- Studying gases and their properties, understand their laws, and perform mathematical calculations related to them.
2- Identifying liquids and solids and differentiating between their properties.
3- Studying solutions, their types, and methods of preparing them to understand their physical properties and how to measure them.
4- Identifying chemical and ionic equilibrium and the factors affecting them.
5- Familiarity with the principles and foundations of electrochemistry and understanding redox reactions.
6- Understanding the basics of thermochemistry to distinguish between thermal energy reactions accompanying chemical reactions.
7- Understanding the principles of kinetic chemistry and using them to predict the speed of a chemical reaction.
8- Studying the principles of surface chemistry and catalysis and their role in increasing or decreasing the speed of a chemical reaction.
9- Identifying the principles of nuclear and radiation chemistry.
10- Studying the principles of polymer chemistry and understand its different types.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	$(3 \times 15)45$	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		45

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

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding;** *Upon completion of the course, students are able to:*			
1.1	**Demonstrate an introductory knowledge in solution, chemical kinetics, thermodynamics, oxidation -reduction….,etc. . (I)**	**K(1)**	***lecture / discussion Seminars /presentation***	***Objective question***
1.2	**Describe the essential facts, principles and theories related to thermodynamics, kinetics, solution chemistry,….etc. (I)**	**K(2)**	***lecture / discussion / Seminars /Individual presentation***	**Essay question**
2.0	**Skills;** *Upon completion of the course, students are able to:*			

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.1	Demonstrate the knowledge and skills required to solve problems in the kinetic, colligative properties, thermodynamics, thermochemistry , ….etc (I) (P)	S(1)	*lecture / discussion / Seminars /Individual presentation*	Solving Problems & chart analysis

C. Course Content

No	List of Topics	Contact Hours
1.	Atomic and Molecular structure	6
2.	Acids and Bases	6
3.	Chemical kinetics	6
4.	Redox reactions and Electrochemistry	6
5.	Solutions	6
6.	Chemistry and Ecology	6
7.	Thermochemistry and Thermodynamics	6
8.	*Revision*	3
Total		45

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	*Periodic Exams*	*During Semester*	*30%*
2.	*Assignments & Classroom Activities*	*During Semester*	*20%*
6.	*Final Exam (sheet + practical)*	*16-17*	*50%*
	Total		*100%*

*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	-الكيمياء العامة المفاهيم الاساسية و ريموند تشانغ , العبيكان للنشر2006,

	Raymond Chang, General Chemistry: The Essential Concepts 5th Edition 2018, ISBN-13: 978-0073311852
Supportive References	-Physical Chemistry ,Peter Atkins, Julio de Paula, Julio DePaula W. H. Freeman, - 2005. - Physical Chemistry, 4th Edition Robert J. Silbey. Robert A. Alberty. Moungi G. Bawendi v. TM. Cambridge, Massachusetts. January 2004
Electronic Materials	Some course contents and materials are posted on Black board sites
Other Learning Materials	• https://learn.saylor.org/course/CHEM101 • https://chem.libretexts.org/Bookshelves/General_Chemistry •https://chem.libretexts.org/Special:Search?qid=&fpid=230&fpth=&query=physical+chemistry&type=wiki

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classrooms,
Technology equipment (projector, smart board, software)	Smart board, Data show, Black board, internet
Other equipment (depending on the nature of the specialty)	none

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Student	Likert-type Survey CES) Indirect
Effectiveness of Students' assessment	Instructor & Course coordinator	Class room evaluation (direct & indirect
Quality of learning resources	Program coordinator	Indirect
The extent to which CLOs have been achieved	Assessment committee	Indirect
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Physical Sciences Department Council
REFERENCE NO.	Meeting (3)
DATE	12/03/2024 -02/09/1445