Course Specification
(Bachelor)

Course Title:	Organic Chemistry 2
Course Code:	CEM 231
Program:	Chemistry
Department:	Chemistry
College:	Science
Institution: :	Majmaah University
Version: :	TP-153
Last Revision Date:	14/12/2024

Table of Contents

A. General information about the course: 3

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods 4

C. Course Content 4

D. Students Assessment Activities 5

E. Learning Resources and Facilities 5

F. Assessment of Course Quality 5

G. Specification Approval 6

A. General information about the course:

1. Course Identification

1. Credit hours: (4hrs)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☐Required		☐Elective		
3. Level/year at which this course is offered: (Level 3)					
4. Course General Description:					
The course provides a systematic study of the theories, principles, and techniques of organic chemistry. This course elaborates functional groups with emphasis on organic halides, alcohols and phenols, ethers and epoxides; aldehydes and ketones, amines, carboxylic acids and its derivatives. Units covered include an in-depth study of the nomenclature, physical and chemical properties major classes of reactions and synthesis of organic functional groups. The course will provide the student with thorough understanding concepts of organic chemistry laboratory and reactions for qualitative identification of various functional groups and procedures of organic analysis at pilot experiments.					
5. Pre-requirements for this course (if any)**:**					
CEM130					
6. Co-requisites for this course (if any)**:**					
There is none					
7. Course Main Objective(s):					
The course aims to Recognize the principles of organic chemistry: naming, reaction physical and chemical properties of the different functional group -Analyze the structure of organic compounds by recognizing main functional groups. -Demonstrate basic understanding of structure of organic molecules -Explain fundamental concepts of the reactivity and synthesis of organic molecules -Appreciate how organic chemistry plays an important role in everyday life. -Work safely and competently in an organic chemistry lab setting -Demonstrate proficiency in organic laboratory skills as they pertain to: chemical information, safe handling, use and disposal of organic compounds; synthetic procedures					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	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**	30
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		75

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	Define the concepts and principles of organic chemistry a evaluate and interpret the organic chemistry principals	**K1**	-Lectures. - Conduct scientific research. -Effective Learning - Seminars. -Discussions -Brainstorming	-Final exam - Midterm exam - Short tests -Quizzes. - Homework - Class exercises
1.2	Explain the organic Chemical Reactions and synthesis of the of organic compounds	**K3**		

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
			Engagement and Motivation	- Evaluation of research
2.0	**Skills**			
2.1	Perform the Laboratory experiments using the right scientific methods and proper safety procedures	**S1**	-Laboratories -Effective Learning Collaborative - Learning. -Engagement and Motivation	-Practical tests -Practical reports -Performance appraisal -rubric assessment Note card Reports and Research papers
2.2	Demonstrate the ability to use modern technology and statistical applications that are used in the various fields of chemistry	**S3**	Lectures. - Conduct scientific research. -Effective Learning - Seminars. -Discussions - E-learning -Self-learning -Brainstorming Engagement and Motivation	Performance appraisal -rubric assessment Note card Reports and Research papers Presentasion
3.0	**Values, autonomy, and responsibility**			
3.1	Demonstrate the ability of working independently and with groups	**V2**	Laboratories -Effective Learning -Collaborative Learning. -Engagement and Motivation -Conduct scientific research -Tem working	-Practical test -Performance appraisal -Reports and -Research papers

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Functional Groups and Classes of Organic Compounds	3
2.	Organic halides nomenclature, structural characteristics classification , physical and chemical properties, synthesis . Reactions and Their Mechanisms (SN1,SN2,E1,E2)	6
3.	Alcohols, nomenclature, structural characteristics classification, physical and chemical properties; synthesis and reactions.	6
4.	Phenols, nomenclature, structural characteristics, physical and chemical properties; synthesis and reactions.	6
5.	Ether , epoxides, nomenclature, structural characteristics, physical and chemical properties; synthesis and reactions.	3
6.	Aldehydes and ketones , nomenclature, structural characteristics, physical and chemical properties; synthesis and reactions.	6
7.	Carboxylic acids and derivatives of Carboxylic acid nomenclature, structural characteristics, physical and chemical properties; synthesis and reactions.	9
8.	Amiens, nomenclature, structural characteristics classification, physical and chemical properties, synthesis and reactions	6
Total		**45**
Practical part		
	Work safely and competently in an organic chemistry lab setting chemical information, safe handling, use and disposal of organic compounds	2
	General test of alkyl halide Physical and chemical properties of alkyl halide Reaction of alkyl halide	2
	General test of alcohols Physical and chemical properties of alcohols Reaction of alcohols	4
	General test of phenols. Physical and chemical properties of phenol.	2
	General test of aldehyde and ketone Physical and chemical properties Reaction of aldehyde and ketone	4
	General test of carboxylic acids . physical and chemical properties of carboxylic acids Reaction of carboxylic acids	6

	Identification of carboxylic acid salt	2
	Identification of Unknown Organic Compounds	6
	Synthesis of Dibenzalacetone	2
Total		**30**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	homework, exercises, periodic tests , Essays, laboratory reports	During the semester	10%
2.	Midterm 1	6th week	10%
3.	Midterm 2	11th week	10%
4.	Electronic exam	12th week	10%
5.	Lab exam	End of semester	20%
6.	Final exam	End of semester	40 %
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	- **T. W. Graham Solomons , Craig B. Fryhle , Scott A. Snyder . Organic Chemistry 12th Edition 2017.** **2- Robert Thornton Morrison. Organic Chemistry 7th edition /2011. Pearson**
Supportive References	**Finar, I L. Organic Chemistry: Volume 1. Sixth Edition)2010. Pearson**
Electronic Materials	http://www.organicworldwide.net/ http://www.organic-chemistry.org/ http://www.colby.edu/chemistry/cmp/cmp.html http://webbook.nist.gov./chemistry/ https://www.sciencedirect.com/

Other Learning Materials	**ChemDraw Professional 17.0 Suite** ACD/ChemSketch :: Draw Chemical Structures :: ACD/Labs ACD/ChemSketch for Academic and Personal Use

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Class room, laboratory of Organic chemistry
Technology equipment (projector, smart board, software)	The electronic platform, data show, Smart Board
Other equipment (depending on the nature of the specialty)	Virtual laboratories Library

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Student evaluation (electronically questionnaire) organized by the University
Effectiveness of Students assessment	Department	Analysis of electronically questionnaire. the Make decision through department Council
Quality of learning resources	Department / staff members	Analysis of course report
The extent to which CLOs have been achieved	Department Faculty	CLO Analysis Report
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Chemistry Department Council	
REFERENCE NO.	17	
DATE	15/6/1446	16/12/2024