Course Specification
(Bachelor)

Course Title:	Aromatic Organic Chemistry
Course Code:	232CHEM3
Program:	Bachelor of Science in Chemistry
Department:	Physical Sciences
College:	College of Science
Institution:	Jazan University (JU)
Version:	TP 135 2024
Last Revision Date:	5/5/2024

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (3h)

2. Course type

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

3. Level/year at which this course is offered: (Level 4 Year 2)

4. Course general Description:

4. Course general Description

1. Course Description

Course Title	Course Number	Contact Hours (CH)		Credit unit (CU)	Year	Level	Pre-requisite
		Lect.	Practical.				
Aromatic organic chemistry	*232CHEM 3*	*2*	*2*	*3*	*2*	*4*	*231CHEM 3*

Course objectives: They are to identify the following.

1- Identifying the properties of aromatic organic compounds

2- To provide students with the basic knowledge concerning nomenclature of aromatic organic compounds.

3 - To familiarize students with the methods of preparation of aromatic compounds and their different chemical reactions

4- To familiarize students with the importance of aromatic compounds and their applications

Syllabus: A-Theoretical contents

Nomenclature, Physical properties, reactivity, classification, preparation, reactions and their application for aliphatic and aromatic of; Halo Compounds, Alcohols and Ethers, Phenols, Aldehydes and Ketones, Carboxylic Acids, Carboxylic Acid derivatives, Aromatic Nitro-Compounds, Amines, Aromatic Diazonium Salts and Their Related Compounds, Aromatic Sulphonic Acids.

Syllabus: B-Practical contents

Selected experiments related to the course content; Investigation of organic solid compounds Identification methods of liquid organic compounds

*See attachment

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

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

None

7. Course Main Objective(s):

This course aims to provide students with the basic knowledge concerning aromatic organic compounds, their methods of preparation, properties and their most important chemical reactions

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	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**	30
2.	**Laboratory/Studio**	30
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		60

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, student will be able to)			
1.1	***Demonstrate a broad understanding and view of the principal theories, concepts and terminology of organic chemistry area. (I)***	**K (1.1)**	***lecture / discussion Seminars /presentation***	***Objective question***

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.2	*Describe Chemical phenomena using organic chemical principles of organic chemistry and understanding the reaction mechanisms for performing of the organic reactions. (I)*	K (1.2)	*lecture / discussion Seminars /presentation*	*Objective question*
2.0	**Skills**; (Upon completion of the course, student will be able to)			
2.1	*Demonstrate an ability in critical thinking for the nomenclature and draw the structure of all classes of organic compounds and differentiate between them. (I)*	S (2.1)	*lecture / discussion Seminars /presentation*	*Objective question*
2.2	*Apply their experimental basics and skills to use laboratory equipment, modern instrumentation, and classical techniques for carrying out experiments in various fields of chemistry and to write a report representing the scientific data. (I)*	S (2.2)	*Lab work, group work*	*Objective question, Essay question, lab report rubric*
2.3	*Examine his material and lab safety background to Follow proper procedures and regulations for safe handling and use of chemicals. (I)*	S (2.3)	*lab demonstrations / hands-on student learning activities*	*Safety exam*

C. Course Content

No	List of Topics	Contact Hours
1.	*Revision on aromaticity, electrophilic aromatic substitution reactions and orientation in aromatic system.*	3
2.	*Halo compounds (aliphatic and aromatic).*	4
3.	*Alcohols, Ether (aliphatic and aromatic).*	4
4.	*Phenols.*	2
5.	*Aldehydes and Ketones (aliphatic and aromatic).*	4
6.	*Carboxylic Acids (aliphatic and aromatic).*	3
7.	*Carboxylic Acid derivatives (aliphatic and aromatic).*	3
8.	*Aromatic Nitro-Compounds*	2
9.	*Amino Compounds, Diazonium Salts and Their Related Compounds*	3
10.	*Aromatic Sulphonic Acids*	2
11.	*Experimental Part*	30
Total		**60**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	*Homework assignment*	3-8	2%
2.	*Lecture Quizzes*	5-7	3%
3.	*Mid-term exam*	6-8	15%
4.	*LAB Sheet*	14	7%
5.	*Quiz in Safety*	13	3%
6.	*Final practical exam*	15	10%
7.	*Lab report*	Through Semester	10%
8.	*Final Exam*	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	*Organic Chemistry, 12th Edition T. W. Graham Solomons, Craig B. Fryhle, Scott A. Snyder ISBN: 978-1-119-24370-0 November 2016Edition 2015.*
Supportive References	*Organic Chemistry, 12th Edition T. W. Graham Solomons, Craig B. Fryhle, Scott A. Snyder ISBN: 978-1-119-24370-0 November 2016Edition 2015.*
Electronic Materials	*1- https://chem.libretexts.org/Bookshelves/Organic_Chemistry/Map%3A_Organic_Chemistry_(McMurry).* *2- https://chem.libretexts.org/Bookshelves/Organic_Chemistry/Book%3A_Organic_Chemistry_with_a_Biological_Emphasis_v2.0_(Soderberg).* ***https://chem.libretexts.org/Courses/Nassau_Community_College/Organic_Chemistry_I_and_II.***
Other Learning Materials	None

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	***1 Lecture room for groups of 50 students.*** ***1 Laboratory for group of 25 students***

Items	Resources
Technology equipment (projector, smart board, software)	Smart board, Data show, Black board, internet.
Other equipment (depending on the nature of the specialty)	Chemical Models, scientific videos

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 and indirect)
Quality of learning resources	***Program committee***	Indirect
The extent to which CLOs have been achieved	Assessment committee	Indirect
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Physical Sciences Department Council
REFERENCE NO.	Psci2415
DATE	28/03/1446 Corresponding to 1 / 10 /2024

H. Attachments

1- Practical Work

	Content	Week	Notes
1.	General Safety Rules, Lab Equipment, and Basic Laboratory techniques.	Week 1	
2.	Ignition Test, Heating with soda-lime test, Treatment with 20% NaOH Test and Treatment with Conic H_2SO_4 Test.	Week 2	
3.	Nitration Test, Acidity test, Solubility and reverse precipitation Test, $FeCl_3$ Test	Week 3	
4.	Combination of compounds containing (C, H, O). Identification of Carbohydrates, Carboxylic acids, Phenols, Aldehydes-Ketones, Metallic salts and Hydrocarbon	Week 4 to Week 7	
5.	Combination of compounds containing (C, H, O, N). Identification of Ammonium salts of acids, Amide, Imides and Amines.	Week 8 to week 11	
6.	Combination of compounds containing (C, H, O, N, S).	Week 12	
7.	Combination of compounds containing (C, H, O, N and halogens).	Week 13	
8.	Training	Week 14	
9.	Final Exam	Week 15	

List of Topics	No. of Weeks
1. General Safety Rules and Lab. Equipment	1
2. Lab. Equipment	1
3. Qualitative analysis of solid organic compounds	2
4. Ignition Test, Heating with soda-lime test, Treatment with 20% NaOH Test and Treatment with Conic H2SO4 Test.	2
5. Nitration Test, Acidity test, Solubility and reverse precipitation Test, FeCl3 Test	2
6. Combination of compounds containing (C, H, O). Identification of Carbohydrates, Carboxylic acids, Phenols, Aldehydes-Ketones, Metallic salts and Hydrocarbon.	1
7. Combination of compounds containing (C, H, O, N). Identification of Ammonium salts of acids, Amide, Imides and Amines.	1
8. Combination of compounds containing (C, H, O, N, S).	1
9. Combination of compounds containing (C, H, O, N and halogens).	2
10. Revision	2
11. Final practical exam.	1

2- Blue Print

Course Name	Aromatic Organic Chemistry
Course Code	232 CHEM-3

PLOs	K1	K2	S1	S2	S3	S4	V1	V2
CLOs	1.1	1.2	2.1	2.2	2.3	--	--	--
Marks	30	24	16	27	3	--	--	--

Learning Domain	PLOs	CLOs	Assessment Type	Assessment Tool	No of Questions	Marks of the Assessment	Weight of the Assessment
Knowledge & understanding	K1	1.1 (30 M)	*Homework*	Objective question	2	2	2%
			Midterm	Objective question	2	7	7%
			Final Exam	Objective question	2	21	21%
	K2	1.2 (24 M)	*Homework*	Objective question	2	2	2%
			Midterm	Objective question	2	5	5%
			Final Exam	Objective question	2	17	17%
Skills	S1	2.1 (16 M)	*Homework*	Objective question	2	1	1%
			Midterm	Objective question	2	3	3%
			Final Exam	Objective question	3	12	12%
	S2	2.2 (27 M)	*Practical Sheet*	Objective question	3	7	7%
			Final Practical Exam	I Task experiment	----	20	20%
	S3	2.3 (3 M)	*Safety EXAM*	Objective question	6	3	3%
TOTAL		100				100	100%