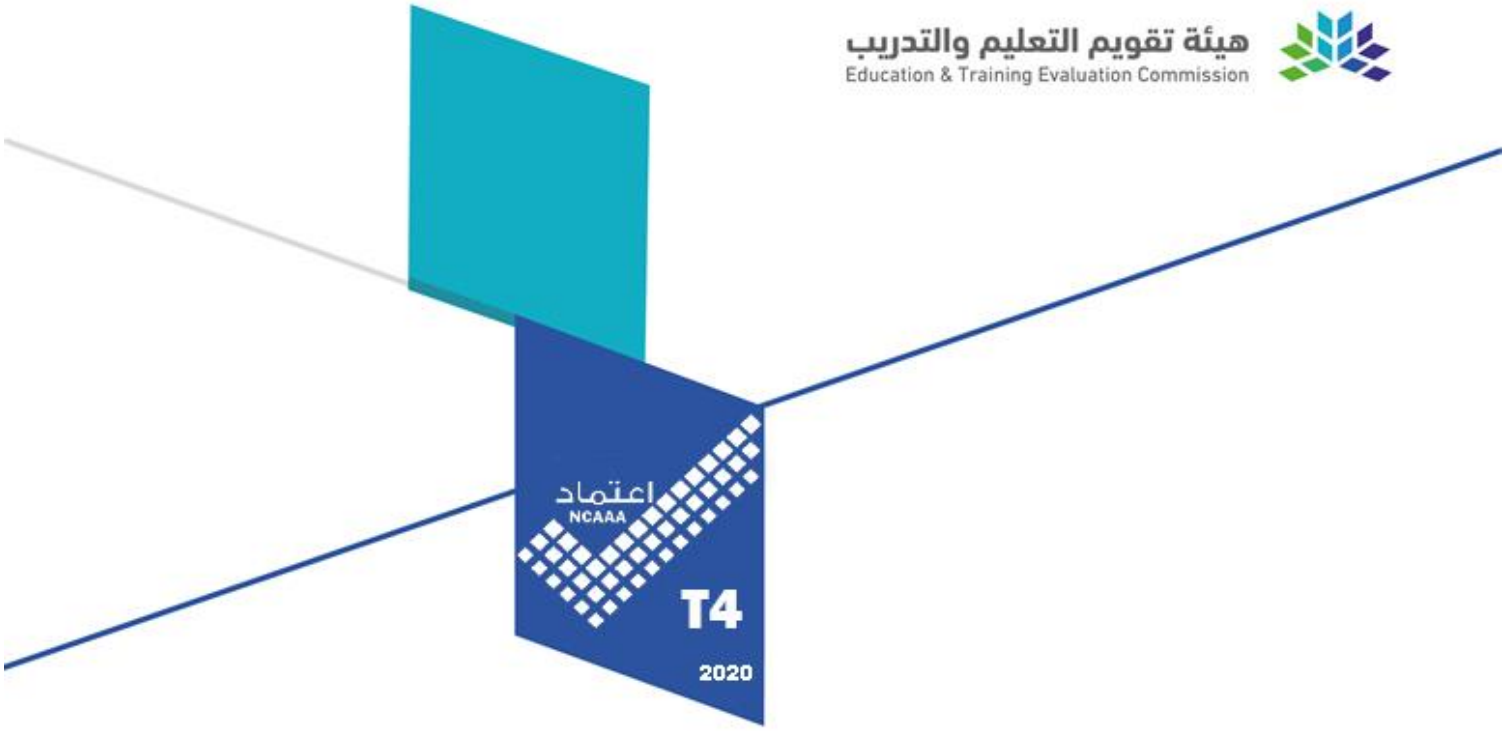
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	***Aromatic Organic Chemistry***
Course Code:	***CHEM 232***
Program:	***Bachelor in Chemistry***
Department:	***Chemistry***
College:	***Faculty of science***
Institution:	***Jazan University (JU)***

Table of Contents

A. Course Identification

1. Credit hours:	***3hr***	**Workload: 169**	**ECTS: 6.0**
2. Course type			
a. University ☐	College ☐	Department √	Others ☐
b. Required √	Elective ☐		
3. Level/year at which this course is offered:	***Level 4 / year 2***		
4. Pre-requisites for this course (if any)**:** ***Aliphatic Organic Chemistry CHEM 231***			
5. Co-requisites for this course (if any)**:** **none**			

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom & LAB**	***57***	***90%***
2	**Blended**		
3	**E-learning**	***3***	***5%***
4	**Distance learning**		
5	**Other (LAB)**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	**30**
2	**Laboratory/Studio**	**30**
3	**Tutorial**	**0**
4	**Others** (specify)	**0**
Total		**60**

B. Course Objectives and Learning Outcomes

1. Course Description

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

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

2. Course Main Objective

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

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding:** *Up on completion of this 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***
1.2	***Describe Chemical phenomena using organic chemical principles of organic chemistry and understanding the reaction mechanisms for performing of the organic reactions. (I)***	***K.2***
2	**Skills:** *Up on completion of this 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.1***
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***
2.3	***Examine his material and lab safety background to Follow proper procedures and regulations for safe handling and use of chemicals. (I)***	***S.3***
3	**Values:** *Up on completion of this course, student will be able to*	

CLOs		Aligned PLOs
3.1	*Work as a group leader in cooperation with other colleagues. (I)*	*V.1*

C. Course Content

No	List of Topics	Contact Hours
1	*Revision on aromaticity, electrophilic aromatic substitution reactions and orientation in aromatic system.*	*2*
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).*	*4*
7	*Carboxylic Acid derivatives (aliphatic and aromatic).*	*4*
8	*Aromatic Nitro-Compounds*	*2*
9	*Amino Compounds, Diazonium Salts and Their Related Compounds*	*2*
10	*Aromatic Sulphonic Acids*	*2*
Total		*30*

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	CLOs	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding** *Up on completion of this 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)*	*lecture*	*Imbedded Q Final exam*
1.2	*Describe Chemical phenomena using organic chemical principles of organic chemistry and understanding the reaction mechanisms for performing of the organic reactions. (I)*	*lecture*	*Imbedded Q Final exam*
2.0	**Skills** *Up on completion of this 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)*	*Lecture*	*Imbedded Q Final exam*
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)*	*Lab. work*	*Lab report*
2.3	*Examine his material and lab safety background to Follow proper procedures and regulations for safe handling and use of chemicals.*	*Lab. work*	*Quiz in safety*
3.0	**Values** *Up on completion of this course, student will be able to*		
3.1	*Work as a group leader in cooperation with other colleagues. (I)*	*Group work*	*Group work rubric*

2. Assessment Tasks for Students

#	Assessment task*		Week Due	Percentage of Total Assessment Score	
1	Homework 1		5	2.5	(2.5%)
2	Group work rubric		8	0	(0%)
3	Quiz in Safety		9	0	(0%)
4	Mid-term exam		10	15	(15%)
5	Homework 2		12	2.5	(2.5%)
6	Practical	Sheet	14	10	(30%)
		Final practical exam		20	
7	Final Exam		16	50 (50%)	
Total				100%	

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:
There are 4 office hours per week dedicated to serving students in terms of student guidance and solving issues related to the course.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	**Organic Chemistry, 12th EditionT. W. Graham Solomons, Craig B. Fryhle, Scott A. SnyderISBN: 978-1-119-24370-0 November 2016Edition 2015.**
Essential References Materials	**Organic Chemistry, 12th EditionT. W. Graham Solomons, Craig B. Fryhle, Scott A. SnyderISBN: 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). 3- https://chem.libretexts.org/Courses/Nassau_Community_College/Organic_Chemistry_I_and_II.
Other Learning Materials	Non

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	***1 Lecture room for groups of 50 students.*** ***1 Laboratory for group of 25 students***

Item	Resources
Technology Resources (AV, data show, Smart Board, software, etc.)	***Data show, smart Board, ChemDraw, power point and ActivInspire.***
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	***Glassware, chemicals, hotplates, water bathes and flam.***

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching and Assessment	***Students***	***Likert-type Survey (CES)*** ***Indirect***
Extent of achievement of course learning outcomes	***Instructor & Course coordinator***	***Class room evaluation (direct & indirect)***
Quality of learning resources	***Program coordinator***	***Indirect***
Exam Quality assessment	***Assessment committee***	***Indirect***

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	**Chemistry Department Council**
Reference No.	42 / 35 /102 112
Date	17 /09 /1442 Corresponding to 28 / 04 /2021

ADD Attachment:
The lab. Experiments.

Topics to be Covered		
List of Topics	**No. of Weeks**	**Week**
1. General Safety Rules	1	1st week
2. Lab. Equipment	1	2nd week
3. Qualitative analysis of solid organic compounds	1	3rd week
4. Ignition Test, Heating with soda-lime test, Treatment with 20% NaOH Test and Treatment with Conic H2SO4 Test.	2	4, 5th weeks
5. Nitration Test, Acidity test, Solubility and reverse precipitation Test, FeCl3 Test	1	6th week
6. Combination of compounds containing (C, H, O). Identification of Carbohydrates, Carboxylic acids, Phenols, Aldehydes-Ketones, Metallic salts and Hydrocarbon.	2	7, 8th weeks
7. Combination of compounds containing (C, H, O, N). Identification of Ammonium salts of acids, Amide, Imides and Amines.	1	9th week
8. Combination of compounds containing (C, H, O, N, S).	1	10th week
9. Combination of compounds containing (C, H, O, N and halogens).	1	11th week
10. Revision	3	12,13, 15th weeks
11. Final practical exam.	1	15th week