



Course Specifications

Course Title:	Organic Chemistry 2
Course Code:	2042203-3
Program:	Bachelor in Chemistry
Department:	Department of Chemistry
College:	College of Sciences
Institution:	Taif University

Table of Contents

A. Course Identification	3
6. Mode of Instruction (mark all that apply)	3
B. Course Objectives and Learning Outcomes	3
1. Course Description	3
2. Course Main Objective.....	3
3. Course Learning Outcomes	3
C. Course Content	4
D. Teaching and Assessment	4
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods	5
2. Assessment Tasks for Students	5
E. Student Academic Counseling and Support	5
F. Learning Resources and Facilities	5
1. Learning Resources	5
2. Facilities Required.....	6
G. Course Quality Evaluation	6
H. Specification Approval Data	6

A. Course Identification

1. Credit hours: 3 (2 Theoretical, 1 Lab)
2. Course type a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/> b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: 5 th Level/ 2 nd Year
4. Pre-requisites for this course (if any): Organic Chemistry 1 (2042105-3)
5. Co-requisites for this course (if any): NA

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3 Theoretical and 2 Practical hours/ Week	100 %
2	Blended	-	-
3	E-learning	-	-
4	Distance learning	-	-
5	Other	-	-

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	20
3	Tutorial	-
4	Others (specify)	-
	Total	50

B. Course Objectives and Learning Outcomes

1. Course Description

The course concerns about the chemistry of aromatic compounds. It describes the main features, nomenclature (IUPAC system) and both electrophilic and nucleophilic substitution reactions of different types of aromatic nuclei. Preparations of various aryl derivatives such as aldehydes, ketones, phenols, carboxylic acids and aromatic amines are also included.

2. Course Main Objective

The course aims to enrich students with essential fundamentals of aromatic organic compounds, their chemical reactions and preparations associated with organic reaction mechanisms.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding:	
1.1	Memorize the methods of preparation and reactions of some organic compounds.	K2
1.2	Recognize the industrial applications of organic compounds	K3
2	Skills:	

CLOs		Aligned PLOs
2.1	Apply the rules Differentiate between aromatic, non-aromatic and anti-aromatic compounds	S1
2.2	Evaluate the impact of aromatic compounds in scientific applications	S3
3	Values:	
3.1	Illustrate the concept of personal responsibility for achieving duties by teamwork	V1

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to aromatic organic compounds: Structural composition of benzene and its property with resonance, Study the aromaticity rules.	3
2	Nomenclature of various aromatic mono-and multi-replacements; Common and IUPAC systems.	3
3	Electrophilic aromatic substitution reactions and the effect of substituted groups in the direction.	3
4	Electrophilic substitution reactions of Di- and Tri-substituted benzenes- Oxidation and Reduction of aromatic rings.	3
5	Polynuclear aromatic hydrocarbons: Naming- Resonance-Preparation-Reactions.	3
6	Aldehydes and ketones: Nomenclature, Preparation and reactions.	3
7	Aromatic carboxylic acids: Nomenclature, Preparation and reactions.	3
8	Aryl Halides: Nomenclature, Preparation and reactions.	3
9	Phenols: Nomenclature, Preparation and reactions.	3
10	Aromatic amines and their derivatives: Nomenclature, Preparation and reactions.	3
Total		30

Lab Content

No	List of Topics	Contact Hours
1	Introduction to Organic Chemistry Lab: Safety, Instrumentations, Solvents purification (Distillation, filtration, extraction and crystallization). Melting point and boiling point determination. Chromatographic separation methods.	2
2	Separating and identification of a mixture of acid and base.	2
3	Separating and identification of a mixture of acid and neutral.	2
4	Separating and identification of a mixture of base and neutral.	2
5	Separating and identification of a mixture of neutral and neutral.	2
6	Synthesis of some organic compounds: Preparation benzalacetophenone (Chalcone)- Part I	2
7	Synthesis of some organic compounds: Preparation benzalacetophenone (Chalcone)- Part II	2
8	Preparation of aspirin- Part I	2
9	Preparation of aspirin- Part II	2
10	Isolation of caffeine from tea.	2
Total		20

D. Teaching and Assessment

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

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Memorize the methods of preparation and reactions of some organic compounds	Lecture	Written exam
1.2	Recognize the industrial applications of organic compounds	Lecture	Written exam
2.0	Skills		
2.1	Apply the rules Differentiate between aromatic, non-aromatic and anti-aromatic compounds	Discussion	Homework Assignments
2.2	Evaluate the impact of aromatic compounds in scientific applications	Problem-Solving	Practical tasks and Exam
3.0	Values		
3.1	Illustrate the concept of personal responsibility for achieving duties by teamwork	Collaborative Learning	Individual presentations

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Homework Assignments	Throughout Semester	5%
2	Individual presentations	Throughout Semester	5%
3	Mid Term Exam	6	20%
4	Practical tasks	Throughout Semester	25%
5	Final practical Exam	10/11	5%
6	Final exam	11/12	40%

*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:

Commitment to the rules of the Academic Advising Department at the university in accordance with the academic guidance manual approved by the university and the attached forms, there are different arrangements made by teaching staff to support student consultations including;

- Office hours: 8 hours per a week for each academic member.
- Academic guidance: an academic member has a number of students to guide them throughout degree journey.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	<ul style="list-style-type: none">• March's Advanced Organic Chemistry, Smith, Michael B., and Jerry March (2007), Latest Edition. John Wiley & Sons Inc. ISBN: 9780471720911. https://onlinelibrary.wiley.com/doi/book/10.1002/0470084960
---------------------------	--

Essential References Materials	<ul style="list-style-type: none"> Organic Chemistry, Paula Yurkanis Bruice (2004). Pearson Education Inc. (USA), Latest Edition. ISBN: 978-0-321-80322-1. https://tinyurl.com/yskm3sj5
Electronic Materials	<ul style="list-style-type: none"> Saudi Digital Library (SDL) https://apps.tu.edu.sa/sdl/default.aspx
Other Learning Materials	<ul style="list-style-type: none"> Learning Management System (Blackboard) https://lms.tu.edu.sa/ Software for graphing organic compounds and chemical reactions (Chem draw , Chem sketch programs)

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"> Lecture hall with 100 seats. Equipped Lab with essential instrumentations.
Technology Resources (AV, data show, Smart Board, software, etc.)	<ul style="list-style-type: none"> Computer and data show with Wi-Fi access. ChemDraw and Chem sketch software.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	<ul style="list-style-type: none"> Melting point instrument. IR spectroscopy instrument.

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching and assessment	Students	Survey (indirect method)
Extent of achievement of course learning outcomes	Program leader	Reports (Direct method)
Quality of learning resources	Peer referees Students	Reports (Direct method) Survey (indirect method)

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	Department Council/ Quality assurance committee
Reference No.	2-5-1444
Date	01/11/2022