Kingdom of Saudi Arabia

The National Commission for

Academic Accreditation & Assessment

Course Specifications

Chemistry of Aromatic compounds

(402234-3)

2016

Course Specifications

Institution: **Umm Al-qura University**	Date of Report: **2015**
College/Department : **Faculty of Applied Science/ department of chemistry**	

A. Course Identification and General Information

1. Course title and code: **Chemistry of Aromatic Compounds**/ 402234			
2. Credit hours: **3(2+1)**			
3. Program(s) in which the course is offered. **Chemistry program**			
4. Name of faculty member responsible for the course:			
5. Level/year at which this course is offered: **3rd level / 2st year**			
6. Pre-requisites for this course (if any): **-Aliphatic chemistry**			
7. Co-requisites for this course (if any)---			
8. Location if not on main campus: **on El-Abedyah, El-Azizia and El-Zaher**			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom		What percentage?	
b. **Blended (traditional and online)**	■	What percentage?	**100%**
c. e-learning		What percentage?	
d. Correspondence		What percentage?	
f. Other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **By the end of this course student will be familiar with basic concepts in aromatic chemistry including dividing, naming, preparation, physical and chemical properties.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) • simulating evolution in the science of chemistry by trying to add new items on some points of the course • diversify of learning sources for the course to benefit from more than one reference • comparison of contents with that introduced in deferent local and international departments • use of smart classes for lectures • Encouragement of students to make reports in aromatic chemistry from libraries or by using internet (Self-study)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
a. Definition and properties of aromatic compounds- chemical structure of benzene	1	2
b. Chemical properties of benzene	1	2
c. Effect of substituted groups on directing and reactivity of benzene ring	1	2
d. Electrophilic aromatic substitution reactions	1	2
e. Benzene alkyl derivatives and directing in di substituted benzene derivatives	1	2
f. Aromatic amines and their reactions	1	2
g. Aromatic Sulfonic acids and their derivatives	1	2
h. Phenols and their derivatives	1	2
i. Aromatic aldehydes and ketones	1	2
j. Aromatic carboxylic acids (mono- di) carboxylic	1	2
k. Poly nuclear aromatic hydrocarbons	1	2
l. Condensed aromatic hydrocarbons	1	2

Practical Part:

I-Identification and investigation tests of the following

a. Aromatic hydrocarbons
b. Aromatic aldehydes and ketones
c. Aromatic carboxylic acids
d. Phenols
e. Aromatic amines
f. Sulfonic acids

II-General scheme for identification of organic aromatic unknown

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	28	-		36		64
Credit	2	-		1		3

3. Additional private study/learning hours expected for students per week.
Two hours for preparing and discussion of reports and solving home works in addition to the main time of lectures

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Recognize the general IUPAC rules for nomenclature of different aromatic organic classes	• Lectures • Scientific discussion • Library visits • Web-based study	• Exams • web-based student performance systems • long and short essays • providing various posters
1.2	Name different organic classes using common and IUPAC system		
1.3	Know the classifications in different organic families		
1.4	Describe the different methods of preparations of organic compounds		
1.5	Familiar with the physical properties of different aromatic compounds and their relation with the structure		
1.6	Select the proper method of conversions among different aromatic compounds		
1.7	Write a mechanism of electrophilic aromatic substitution reactions.		
1.8	Recognize the industrial use of most famous organic molecules		
2.0	**Cognitive Skills**		
2.1	Train to choose the suitable method for the preparation of organic compounds		
2.2	Apply the IUPAC rules for all aromatic families	• Lectures • Scientific discussion • Library visits • Web-based study	• Exams • web-based student performance systems • posters
2.3	Compare between IUPAC nomenclature and common nomenclature for aromatic compounds		
2.4	Explain the different strategies for preparation of aromatic compounds		
2.5	Analyze the reasons for the unique physical properties in some organic compounds		

2.6	Predict the expected product in different aromatic reactions according to the functional group		• demonstrations
2.7	Summarize the different reactions of aromatic compounds		
3.0	**Interpersonal Skills & Responsibility**		
3.1	Use the IUPAC rules for all organic families	• Lectures • Scientific discussion • Web-based study	• Exams • web-based student performance systems
3.2	Choose the suitable mechanism for a given reaction		
4.0	**Communication, Information Technology, Numerical**		
4.1	Research using computer to collect the data used in writing reports	• Using computers lab • Research centers visit • Library visits • Web-based study	• web-based student performance systems • individual and group presentations
4.2	Illustrate sources of new researches which are related to the course by researching in the internet		
5.0	**Psychomotor**		
5.1	NOT APPLICABLE		
5.2			

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Home works, activity and participations	All the term	10%
2	Exams	5, 13	20
3	Activity in lab and practical Exam	All the term	30%
4	Final Exam	At the end of the term	40%
	Sum		100%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

- **We have faculty members to provide counseling and advice.**
- **Office hours: During the working hours weekly.**
- **Academic Advising for students.**

E. Learning Resources

1. List Required Textbooks • T. W. Graham Solomons, Craig B. Fryhle, Scott A. Snyder "Organic Chemistry, 11th Edition, International Student Version" **2013**, John Wiley & Sons. • John McMurry's "Organic Chemistry, 8th edition, International Edition" **2011**, Brooks/Cole
2. List Essential References Materials (Journals, Reports, etc.) 1. Organic chemistry, by Graham Solomons TW, Craig B Fryhle, 8th ed., 2007. 2. Organic Chemistry, by J. McMurvy, 6th ed., Brooks/Cole Publishing Company(2003). 3. Introductory Organic Chemistry , Amit Arora, Discovery Publishing House, (2006). •
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) • Amit Arora "Introductory Organic Chemistry" **2006**, Discovery Publishing House New Delhi • M. Casey, J. Leonard, B. Lygo, G. Procter "Advanced Practical Organic Chemistry" 1990, Springer US
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) • **http://www.chemweb.com** • **http://www.sciencedirect.com** • **http://www.rsc.org**
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) • **Classrooms capacity (30) students.** • **Providing hall of teaching aids including computers and projector.**

2. Computing resources (AV, data show, Smart Board, software, etc.) ▪ **Room equipped with computer and projector and TV.**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) • **No other requirements.**

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Complete the questionnaire evaluation of the course in particular.
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor • **Observations and the assistance of colleagues.** • **Independent evaluation for extent to achieve students the standards.** • **Independent advice of the duties and tasks.**
3 Processes for Improvement of Teaching • **Workshops for teaching methods.** • **Continuous training of member staff.** • **Review of strategies proposed.** • **Providing new tools for learning.** • **The application of e-learning.** • **Eexchange of experiences internal and external.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) ▪ **Check marking of a sample of exam papers, or student work.** ▪ **Exchange corrected sample of assignments or exam basis with another staff member for the same course in other faculty.**

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • **Periodic Review of the contents of the syllabus and modify the negatives.** • **Consult other staff of the course.** • **Hosting a visiting staff to evaluate of the course.** • **Workshops for teachers of the course.**