ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Environmental Chemistry

4024574-2

Course Specifications
(CS)

Course Specifications

Institution: **Umm Al-qura University**	Date of Report: **2017**
College/Department : **Faculty of Applied Science/ department of chemistry**	

A. Course Identification and General Information

1. Course title and code: **Environmental Chemistry / 4024574-2**			
2. Credit hours: **2**			
3. Program(s) in which the course is offered. **Chemistry and Industrial Chemistry**			
4. Name of faculty member responsible for the course: **Dr. Mohammed Kassem**			
5. Level/year at which this course is offered: **6th level / 3rd year**			
6. Pre-requisites for this course (if any): **separation tech and thermal analysis**			
7. Co-requisites for this course (if any)---			
8. Location if not on main campus: **both on El-Abedyah, and El-Zaher**			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	■	What percentage?	**100%**
b. **Blended (traditional and online)**		What percentage?	
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 the students will** **1- Have all information about the basis environmental chemistry** **2- Familiar with air, water and soil pollution** **3- Gases cycle in the atmosphere**
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) **The students will be mentioned to prepare an essay or a report from literature using the library, data base services, and/or websites to follow up and update the new topics of the subject of the course**

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. Introduction	1	2
b. Principles of environmental chemistry and chemical analysis	2	4
c. Energy and energy cycles and gases cycles	2	2
d. Role of human in environmental pollution	1	2
e. Atmosphere chemistry	1	2
f. Air pollution (classification-sources –problems-global warming phenomenon)	2	4
g. Water treatment chemistry	1	2
h. Water pollution (water quality- types of contaminants- water pollution control)	2	4
i. Soil chemical analysis	2	2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	24	-		-		24
Credit	2	-		-		2

3. Additional private study/learning hours expected for students per week. 2 h

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 meaning of environment and methods in analytical chemistry related to the pollution	• Lectures • Scientific discussion • Library visits • Web-based study	• Exams • web-based student performance systems • portfolios • long and short essays • posters lab manuals
1.2	Identify the principles of energy resources		
1.3	Know the principles of energy cycles		
1.4	Describe some gases cycles		
1.5	Familiar with global warming phenomenon		
1.6	Select the proper method of analysis		
1.7	Name the different classes of air, water and soil pollution		
1.8	Determine principles of atmosphere chemistry		
2.0	**Cognitive Skills**		
2.1	Apply analytical methods in environmental pollution	• Lectures • Scientific discussion • Library visits • Web-based study	• Exams • web-based student performance systems • portfolios • posters • demonstrations
2.2	Compare different types of pollutions		
2.3	Explain the principles air, water and soil pollutions		
2.4	Analyze control methods for water , air and soil pollutions		
2.5	Summarize the principles of atmosphere chemistry		
3.0	**Interpersonal Skills & Responsibility**		
		•	•
4.0	**Communication, Information Technology, Numerical**		
4.1	Appraise the treatments for pollution in analytical chemistry	• Lectures • Scientific discussion • Library visits • Web-based study	• web-based student performance systems • individual and group presentations
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	Homework or activities.	--	10 %
2	Midterm Exam.	8	20 %
3	Practical Exam.	14	30 %
4	Final Exam. (2hours Exam)	16	40 %
5	**Total**	**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

- **Donald L. Sparks**, ***Environmental Soil Chemistry***, 2nd Edition, Academic Press (2003)
- Stanley E. Manahan, ***ENVIRONMENTAL SCIENCE, TECHNOLOGY, AND CHEMISTRY,*** 2000, CRC Press LLC

2. List Essential References Materials (Journals, Reports, etc.)

- Lecture Hand outs available on the coordinator website

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

- Gary D. Christian, Purnendu K. Dasgupta and Kevin A. Schug, ***Analytical Chemistry***, 7th edition, WILEY (2014)

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.** • **Exchange 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.**

Faculty or Teaching Staff: **Dr. Mohammed Kassem**

Signature: **Date Report Completed: 14/1/2019**

Received by: Dr. Ismail Althagafi **Department Head**

Signature: **Date: 20/1/2019**