



**ATTACHMENT 2 (e)**

**Course Specifications**

**Kingdom of Saudi Arabia**

**The National Commission for Academic Accreditation & Assessment**

# **Industrial analysis and quality measurements**

**4024775-2**

**Course Specifications  
(CS)**





## Course Specifications

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

### A. Course Identification and General Information

1. Course title and code: <b>Industrial analysis and quality measurements/ 4024775-2</b>	
2. Credit hours: <b>2 hrs</b> (1 theoretical + 1 Laboratory )	
3. Program(s) in which the course is offered. <b>Industrial Chemistry</b>	
4. Name of faculty member responsible for the course: <b>Dr, Mohammed Kassem</b>	
5. Level/year at which this course is offered: <b>7<sup>th</sup> level / 4<sup>rd</sup> year</b>	
6. Pre-requisites for this course (if any): <b>Separation techniques and thermal analysis</b>	
7. Co-requisites for this course (if any)---	
8. Location if not on main campus: <b>El-Abdyah</b>	
9. Mode of Instruction (mark all that apply)	
a. Traditional classroom	<input checked="" type="checkbox"/> What percentage? <b>100%</b>
b. Blended (traditional and online)	<input type="checkbox"/> What percentage?
c. e-learning	<input type="checkbox"/> What percentage? <input type="checkbox"/>
d. Correspondence	<input type="checkbox"/> What percentage? <input type="checkbox"/>
f. Other	<input type="checkbox"/> What percentage? <input type="checkbox"/>
Comments:	



## B Objectives

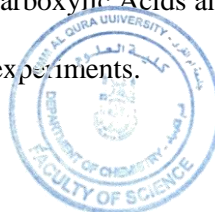
1. What is the main purpose for this course? <b>The course aims to shed light on the meaning of quality in analytical chemistry and how to measure the quality of different analytical methods and identify the different tests used in it.</b>
2. Briefly describe any plans for developing and improving the 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) <b>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</b>

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
1. Introduction about industrial color testing	1	1
2. measurement and evaluation of object colors	2	2
3. Determination of hiding power and transparency	1	1
4. Measurement of film thickness	1	1
5. Determination of tinting strength and lighting power	1	1
6. Meaning of quality and quality measurements	1	1
7. Quality in chemical analysis- Reliability in analytical chemistry	1	1
8. Quality of analytical processes and results - Establishing a new analytical procedure	1	1
9. Reporting analytical results - Analytical errors that can be detected using statistical quality control methods	1	1
10. Interlaboratory tests for process standardization	1	1
11. Quality management system of the provider of an interlaboratory test	1	1
12. Procedures for the execution and evaluation of interlaboratory	2	2

### Laboratory **part:**

- Color fastness to Acids and Alkalis
- Fiber Analysis: Qualitative
- Fiber Analysis: Quantitative
- pH of the Water-Extract from Wet Processed Textiles
- Chelating Agents: Chelation Value of Aminopolycarboxylic Acids and Their Salts; Calcium Oxalate Method
- Application of significant tests for some practical experiments.
- Cement analysis





2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	14	-	42			56
Credit	1	-	1			2

3. Additional private study/learning hours expected for students per week.	2 h
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy
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	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
<b>1.0</b>	<b>Knowledge</b>		
1.1	Define the quality in chemical analysis	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Scientific discussion</li> <li>• Library visits</li> <li>• Web-based study</li> </ul>	<ul style="list-style-type: none"> <li>• Exams</li> <li>• web-based student performance systems</li> <li>• portfolios</li> <li>• long and short essays</li> <li>• posters lab manuals</li> </ul>
1.2	Identify the principles of industrial color testing		
1.3	Know the meaning of quality and quality measurements		
1.4	Familiar with establishing a new analytical procedure		
1.5	Determine the hiding power and transparency		
1.6	Recognize procedures for the execution and evaluation of interlaboratory		
1.7	Memorize quality in chemical analysis		
1.8	Outline reports for analytical results		
1.9	Recognize measurement and evaluation of object colors		
<b>2.0</b>	<b>Cognitive Skills</b>		
2.1	Apply the analytical errors that can be detected using statistical quality control methods		
2.2	Compare between tinting strength and lighting power		
2.3	Explain measurement and evaluation of object colors		
2.4	Analyze the meaning of quality and quality measurements		•
2.5	Summarize the Procedures for the execution and evaluation of interlaboratory		
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		



	<ul style="list-style-type: none"> <li>• Ability to work in a team to perform a specific experimental tasks.</li> <li>• Ability to work independently to handle chemicals</li> <li>• Ability to communicate results of work to classmate and participation in class or laboratory discussions</li> </ul>	<ul style="list-style-type: none"> <li>• Class discussions</li> <li>• Research activities</li> </ul>	<ul style="list-style-type: none"> <li>• Performance on in-practical exams.</li> <li>• Work on research activity.</li> <li>• Overall student performance in Lab. discussions</li> <li>• Cross questions after finishing laboratory work</li> </ul>
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
	<ul style="list-style-type: none"> <li>• Ability to solve problems.</li> <li>• Ability to computers and internet to search and restore information.</li> <li>• Use information and communication technology.</li> <li>• The ability to use e-mail to communicate with the instructor and other students.</li> <li>• Scientific writing.</li> <li>• Use his/her observations to solve problems.</li> </ul>	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Scientific discussion</li> <li>• Web-based study</li> </ul>	<ul style="list-style-type: none"> <li>• Exams</li> <li>• web-based student performance systems</li> </ul>
<b>5.0</b>	<b>Psychomotor</b>		
5.1	Laboratory practice . including 1.Locate Materials Safety Data Sheets, chemicals carcinogens list, and hazardous chemicals list. 2. Handle chemicals safely with a proper PPE 3.Dilute solutions, repeat analysis and calculate true result for all procedures performed as required. 4.Dispose the hazardous solution in right way	Practical session should include both demonstration and experiments .	1.Repetition of the experiments , to reproduce the results 2.Written report of chart and procedures. 3.The students should be able to correlate their results with experimental conditions
5.2			
	NOT APPLICABLE		



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. (2 hours)	16	40 %
5	<b>Total</b>		<b>100 %</b>

#### 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

- Hans G. Volz, *Industrial color testing, Fundamentals and techniques*, 2<sup>nd</sup> Edition, Wiley(2002)

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)

- W. Funk, V. Dammann, G. Donnevert, *Quality Assurance in Analytical Chemistry*, 2007 WILEY-VCH
- Gary D. Christian, Purnendu K. Dasgupta and Kevin A. Schug, *Analytical Chemistry*, 7th edition, WILEY (2014)
- Dhruva Charan Dash. *Analytical Chemistry* (2017) PHI Learning Private Limited.

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**

