



ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Chemistry of Inorganic Industries

4024774-2

Course Specifications

(CS)





Course Specifications

Institution: Umm Al-qura University	Date of Report: 2017
College/Department : Faculty of Applied Sciences / Chemistry Department	

A. Course Identification and General Information

1. Course title and code: Chemistry of Inorganic Industries / 4024774-2	
2. Credit hours: 2 (theoretical)	
3. Program(s) in which the course is offered: Industrial Chemistry	
4. Name of faculty member responsible for the course: Prof. Abdalla Mohamed Khedr	
5. Level/year at which this course is offered: 7th level/4th year	
6. Pre-requisites for this course (if any): - Chemistry of Transition Elements	
7. Co-requisites for this course (if any)---	
8. Location if not on main campus: El-Abedyah	
9. Mode of Instruction (mark all that apply)	
a. Traditional classroom	<input checked="" type="checkbox"/> What percentage? 100%
b. Blended (traditional and online)	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:	

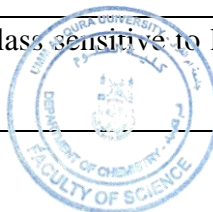


B. Objectives

<p>1. What is the main purpose for this course?</p> <p>The goal of this course is to familiarize students with:</p> <ol style="list-style-type: none"> The importance of industrial inorganic chemistry and its future role. Types of glass, its structure, raw materials and different methods for manufacturing of glass. Ceramic, porcelain, iron and fertilizers industries.
<p>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)</p> <ul style="list-style-type: none"> Encourage students to carry out reports in the field of cement industry and modern building materials. The use of smart teaching halls for lectures. Using different learning sources of the course, so that the students make use of more than one reference.

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
• Glass industry: the types of raw materials – structure of glass - chemical reactions - different methods for manufacturing of glass.	1	2
• Types of glass: low silica and high silica glass - glass sensitive to light - safety glass and glassy ceramics.	1	2





• Ceramic industry: basic raw materials - chemical transformations in the ceramic industry.	1	2
• Porcelain industry: the product of constructivism clay - special ceramic products such as ferro-electric and ferro-magnetic ceramics.	2	4
• Iron industries: basic raw materials - interactions in blast furnace - the different types of iron and their properties.	2	4
• Iron corrosion and its resistance – curves of iron and different compounds.	1	2
• Acids and bases of industrial importance: sulfuric, nitric acids and their compounds as well as their economic importance.	2	4
• Ammonia - nitrogen – fixation of atmospheric nitrogen - liquid nitrogen and its uses.	1	2
• Chemistry of fertilizers: nitrogenic fertilizers.	1	2
• Phosphates fertilizers.	1	2
• Complex fertilizers.	1	2



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

3. Additional private study/learning hours expected for students per week.
• Two hours a week to prepare reports, discuss and resolve questions related to cement industry, modern building materials and other subjects of the course.

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

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	• Recall types of raw materials and different ways to manufacture of glass.	<ul style="list-style-type: none"> • Use the library to work duties and small researches on subjects of the course. • Use of the Internet to carry out some reports. • Lectures. • Scientific discussion. 	<ul style="list-style-type: none"> • Long and short essays. • Written mid-term and final exams.
1.2	• Know types of glass.		
1.3	• Describe the acids and bases of industrial importance.		
1.4	List some of iron industries		
1.5	Write on chemistry of fertilizers.		
2.0	Cognitive Skills		
2.1	• Summarize the basic raw materials used in iron industries.	<ul style="list-style-type: none"> • Lectures • Scientific discussion • Library visits • Web-based study 	<ul style="list-style-type: none"> • Periodic tests and assignments. • Measuring the response to the assignments.
2.2	• Analyze curves of iron and different compounds.		
2.3	• Compare between nitrogenic and phosphates fertilizers.		
2.4	• Estimate the special ceramic products.		
3.0	Interpersonal Skills & Responsibility		
3.1	Operate in team work and accept his college's opinions.	<ul style="list-style-type: none"> • Dividing students into groups to carry out 	<ul style="list-style-type: none"> • Evaluate the results of collective works and duties as well as
3.2	• Develop the student's ability in self-		



	reliance and responsibility.		
3.3	<ul style="list-style-type: none"> Choose the best methods for manufacturing of glass. 	<p>collective scientific reports.</p> <ul style="list-style-type: none"> Periodic individual duties to develop the skill of taking responsibility and self-reliance 	<p>knowing the contribution of each individual through dialogue and discussion.</p> <ul style="list-style-type: none"> Assessment of individual tasks and duties to determine the student's ability to self-reliance.
4.0	Communication, Information Technology, Numerical		
4.1	Use computers and the international information network (the Internet) to perform calculations and to identify recent research relevant to decision sources.	<ul style="list-style-type: none"> Using the internet for collecting data. The use of computers in the training room of the department. Visiting research centers. 	<ul style="list-style-type: none"> Evaluation of the duties associated with the proper use of numerical and communication skills. Web-based student performance systems Individual and group presentations.
4.2	Perform mathematical calculations and data analysis.		
5.0	Psychomotor		
5.1	<ul style="list-style-type: none"> 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	First Periodic Exam.	6	20 %
3	Second Periodic Exam.	12	20 %
4	Final Exam. (2hours exam)	16	50 %
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)
 - Availability of Staff members to provide counseling and advice.
 - Academic Advising for students.
 - Office hours: During the working hours weekly.

E. Learning Resources

1. List Required Textbooks
 - Fundamentals of Materials Science and Engineering, William D. Callister, David G. Rethwisch, 4th Edition SI Version, Wiley, 2012.
2. List Essential References Materials (Journals, Reports, etc.)
 - Solid State Chemistry and its Applications, Anthony R. West, 2nd Edition, Student Edition, Wiley, 2014.
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
 - Introduction to Glass Science and Technology: RSC (RSC Paperbacks), James E. Shelby, Royal Society of Chemistry; 2nd edition, 2005.
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. : - Not required.

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.)

- Equipped lecture halls.

2. Computing resources (AV, data show, Smart Board, software, etc.)

- Room equipped with computer, data show 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

- Questionnaire evaluation of the course.

2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor

- Preparation of a course report and study of the results of the students to give us indication about the planned outputs and the extent to which student's benefits.

3. Processes for Improvement of Teaching

- Application of e-learning.
- Review of the proposed strategies.
- Providing new tools for 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.


- Workshops for teachers of the course.
- 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.

Faculty or Teaching Staff: Prof. Abdalla Mohamed Khedr

Signature: 

Date Report Completed: 12/1/2019

Received by: Dr. Ismail Althagafi Department Head

Signature: 

Date: 20/1/2019

