جامعة المجمعة
Majmaah University

Course Specifications

Institution:	Majmaah University.
Academic Department :	Chemistry Department.
Programme :	Chemistry.
Course :	Physical Chemistry (Surfaces, Colloid s & Catalysis)
Course Coordinator :	Manal Mohamed Salem.
Programme Coordinator :	Gehan Alaemary
Course Specification Approved Date :	19/ 12 / 1435 H□

This form compatible with NCAAA 2013 Edition

A. Course Identification and General Information

1. 1 - Course title : Chemistry Physical(Surfaces, Colloid s & Catalysis)	Course Code:Chem316.
2. Credit hours :	(**2** theoretical + 2 practical
3 - Program(s) in which the course is offered:	Chemistry.
4 – Course Language :	Arabic Language
2. 5 - Name of faculty member responsible for the course:	Manal Mohamed Salem
3. 6 - Level/year at which this course is offered :	level **(5)**
7 - Pre-requisites for this course (if any) :	Not found
8 - Co-requisites for this course (if any) :	Experiments Surface Chemistry ,Colloids & catalysis
9 - Location if not on main campus **:**	College of Education - Zulfi

10 - Mode of Instruction (mark all that apply)

A - Traditional classroom	√	What percentage?	**20 %**
B - Blended (traditional and online)		What percentage?	
D - e-learning	√	What percentage?	**80 %**
E - Correspondence		What percentage?	
F - Other		What percentage?	

Comments :

B Objectives

What is the main purpose for this course?

Aimed modern physicochemical Studies to phenomena the surface:

- Student to understand phenomena by molecular model and study the theories of surface tension and laws.
- To identify the types of solutions and types of colloids and their properties and methods of preparation.
- To distinguish between student chemical and physical adsorption and catalysis study of homogeneous and heterogeneous, and its laws and its applications.

Briefly describe any plans for developing and improving the course that are

being implemented :

- Adoption of the students themselves in the study, and borrow references from the library
- The use of effective teaching methods and modern.
- Change the content and updated

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
- The surface tension , the concept and methods of measurement	5	10
- Adsorption ,the concept ,types, curves , theories and ion exchange - Chromatography Adsorption	2	4
- Colloids, types, and examples and their properties	5	10
- Catalysis and characteristics, types and theories	2	4
Practical:		
Determine the absolute and relative density of liquids	1	2
Measuring the surface tension of the liquid by rising in capillary tubes	2	4
Measuring the absolute and relative viscosity of liquids	2	4
Midterm test	1	2
Drawing curves adsorption at constant temperature of oxalic acid on char coal	2	4
Determination surface adsorption of amyl alcohol from aqueous solutions	2	4
Review	2	4

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

☐	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	14	.....☐	28	☐	.....☐	42hr.☐
Credit	2☐	.....☐	.....☐	.....☐	.....☐	28

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

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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	By the end of this course the students will be able to: Remeber definitions of surface phenomena important such as surface tension.	- Lectures - Discussion - Experiments - Researches	-Work activities -Field exercises -Periodic tests -Final tests
1.2	Introduce students to the concepts of surface chemistry and its applications		
1.3	Introduce students to the concepts of colloids chemistry		
1.4	To compare the types of colloidal solutions and their methods of preparation		
1.5	Identify ways to prepare colloidal solutions		
1.6	Identify the characteristics of colloidal solutions.		
1.7	Introduce students to the comparison between the types of catalysis		
1.8	Introduction of students to be catalysts follow the mechanical interactions		
1.9	Introduce students to connect between the theoretical and practical lessons by conducting laboratory experiments		
1.10	Definitions of surface phenomena important such as surface tension.		
2.0	**Cognitive Skills**		
2.1	By the end of the course students should be able to: The ability of the existence of solutions to	-Lectures -Discussion -Experiments	- Participate in the hall - Research in the

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	unexpected problems in creative ways.	-Researches	content.
2.2	The ability to use laboratory tools accurately.	.	- solve problems
2.3	The ability to critical and analytical thinking.		- collective and individual duties.
2.4	The ability to analyze the concepts and basics and principles.		- midterm and final exams
2.5	trying to figure out the problems contained testing process and how to solve it.		
2.6	Apply the skills acquired in the academic and professional contexts related to the science of chemistry.		
3.0	**Interpersonal Skills & Responsibility**		
3.1	By the end of the course students should be able to: Cooperative work in the laboratory.	-Homework to develop the skills of self-study. -The practical studies as groups. -The work of - Intramural Research -Internet search -PowerPoint Offers.	Follow up experiments in the laboratory , Effective participation within the hall - Assessment research and Review the Collective duties. - The ability to self-Study in the form of homework. Follow up experiments in the laboratory .
3.2	Conduct research work as a team.		
3.3	Effective participation in the activities of the methodology.		
3.4	The ability to self-reliance when learning.		
3.5	Assume responsibility and individual responsibility towards society		
3.6	Take individual responsibility and responsibility towards the community with a commitment to the values and ethics that are compatible with Islamic values		
4.0	**Communication, Information Technology, Numerical**		
4.1	By the end of the course students should be able Use of modern communication technologies and information.	Solving problems. Use of the Computer The use of a calculator. Discussion and dialogue	Discussion Monthly tests And Theoretical tests.
4.2	Discussion and dialogue during lectures.		
4.3	Application of mathematical and statistical methods when solving problems**.**		
4.4	**.....**		
4.5	**.....**		.....
4.6	**.....**	.....	.....
5.0	**Psychomotor**		
5.1			
5.2			
5.3			

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
5.4	.....		
5.5	.....	.....	.....
5.6	.....	.....	.....

5. Schedule of Assessment Tasks for Students During the Semester:

	Assessment task	Week Due	Proportion of Total Assessment
1	Participation activities students methodological Of scientific research – Entries…	Weekly	10%
2	Midterm Exam.	Sixth week	20%
3	Final test (practical)	Fourteenth week	20%
4	Final test (theoretical)	Nineteenth Week	50%
5	.....	.....	.....
6	.....	.....	.....
7	.....	.....	.....
8	.....	.....	.....

D. Student Academic Counseling and Support

-Benefit from the counseling hours
- Communicate with students

E. Learning Resources

1. List Required Textbooks :

1- Principles of Physical Chemistry - electrochemistry – surfaces chemistry -Catalysis-photochemistry, A. Hassan, M.Badr al-Din, Al-Azhar University in 1998 (third part).

2-"Heterogeneous catalysis", Charles N.. Satterfield.

3- "Surface Chemistry and Catalysis", H. Shehata, Faculty of Science, Al-Azhar University, 2004.

4-Principles of Colloid &Surface Chemistry" , Paula C. Hermes.

5-"Physical Chemistry of Surface ",Arthur W Admass. Principles of Physical

2. List Essential References Materials :

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1- Principles of Physical Chemistry - electrochemistry – surfaces chemistry -Catalysis-photochemistry, A. Hassan, M.Badr al-Din, Al-Azhar University in 1998 (third part).
2- "Surface Chemistry and Catalysis", H. Shehata, Faculty of Science, Al-Azhar University, 2004.

List Recommended Textbooks and Reference Material :

- .....
- .....
- .....

4. List Electronic Materials :

www. Science-direct.com.

5. Other learning material :

- .....
- .....
- .....

F. Facilities Required

1. Accommodation

Lecture room is excellent,
Lecture room contains Platform , smart board, 40 seats, Air-conditioners and curtains in good condition.

2. Computing resources

- Personal.

3. Other resources

- Availability of equipment relevant to the course material

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching:

Analysis of the results of students in decision
A questionnaire asking a faculty member for the students at the end of the semester
Ask a questionnaire course content for students at the end of the semester
Midterm Exam
Assess vocabulary scheduled by analyzing workmanship skills among female students

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

- discuss the problems of material (Vocabulary scheduled and teaching hours…) ,
- discuss research students with some of the members of the section ,
- Invite specialists and their discussion

3 Processes for Improvement of Teaching :

- Review of teaching strategies recommended.
- Diversity teaching methods and activating the use of modern technologies
- The formation of the scientific in section of qualified and experienced
- Provide learning resources, especially the library and the Internet.
- Motivate and encourage students to actively participate in the research and experimentation
- Participate effectively in the training courses for the development of the capacities of Professor.
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- Training and continuous development
- Peer consultation on teaching

4. Processes for Verifying Standards of Student Achievement

- check marking by a faculty member of the department for a sample of students
- check marking by an independent faculty member.

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :

- Develop appropriate vocabulary and keep pace with changing times
- Review Course Description
- Follow-up in the new effective teaching strategies
- benefit from the development of university courses and activated in educational performance
- Hold workshops to view the results.

Course Specification Approved
Department Official Meeting No (…..) Date … / …. / ….. *H*

Course's Coordinator		Department Head	
Name :	Manal Mohamed salem	***Name :***	Gehan Alaemary.
Signature :	M.Salem	***Signature :***	.....
Date :	18/ 12 / 1435 *H*	***Date :***	…./ … / …… *H*