Kingdom of Saudi Arabia

The National Commission for

Academic Accreditation & Assessment

Course Specifications

Colloid Chemistry and Phase Rule

402121

2016

Institution **Umm Al-qura University**	Date of Report **2016**
College/Department **Faculty of Applied Science/ department of chemistry**	

A. Course Identification and General Information

1. Course title and code: **Colloid Chemistry and Phase Rule- 402121**
2. Credit hours: **2h**
3. Program(s) in which the course is offered. **Chemistry program**
4. Name of faculty member responsible for the course: **Dr Ahmed Fawzy Saad**
5. Level/year at which this course is offered: **5th level/third Year**
6. Pre-requisites for this course (if any) **General Chemistry(2)**
7. Co-requisites for this course (if any): **none**
8. Location if not on main campus: **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 the study of this course have students familiar with

- **the basic concepts of colloid chemistry**
- **types of colloids and there preparation methods**
- **properties of colloids and their applications**
- **basics of phase rule and its important**
- **Examples of phase rule to mono, di and tri component systems**

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)

Use smart teaching halls for lectures.

*** Encourage students to link colloid chemistry course and what studied numerous applications in various domains such as Chemistry and medicine and Pharmacy and the food industry, water purification and industry and succession through work reports both from the library or using the Internet (self-teaching) and through discussion with Standing**

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-Definition of colloids with examples	**1**	**2**
2- Classification of colloids	**1**	**2**
3- Theory of colloid stabilization	**1**	**2**
4- Methods of colloids preparations	**1**	**2**
5- Colloid technology	**1**	**2**
6- Colloid properties	**1**	**2**
7- Importance of colloids and its importance	**1**	**2**
8- Definition of phase rule	**1**	**2**
9- Physical changes dynamics	**1**	**2**
10- Cielus Calpyron Equation	**1**	**2**
11- Studying phase rule low	**1**	**2**
12- Phase rule of one component system	**1**	**2**
13- Phase rule of two component system	**1**	**2**
14- Phase rule of three component system	**1**	**2**
15- General Revision and Exam	**1**	**2**

2016

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	**30**	-	-	-		**30**
Credit	**2**	-	-	-		**2**

3. Additional private study/learning hours expected for students per week. **1 hour/week**

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	**mention the main differences between colloids and suspension and true solution.**	1.Lectures using white board and data show 2. Problem classes 3. discussion groups	1.Midterm exam 2.quizzes 3.Group discussion 4.Final exam
1.2	**list the preparation and purifying of colloidal solutions.**		
1.3	**describe characteristics of colloidal solutions.**		
1.4	**describe the most important applications of colloidal solutions.**		
1.5	**describe the phase rule and its classifications.**		
1.6	**mention equilibrium curves for different systems.**		
2.0	**Cognitive Skills**		
2.1	**Compare between colloids and suspension and true solution.**	• Scientific discussion • Library visits • Web-based study	• web-based student performance systems • portfolios • posters
2.2	**Give concise about the characteristics of colloidal solutions**		

2.3	**Analyze the relations between different phases of material.**		• demonstrations
2.4	**Apply equilibrium curves for different systems**		
3.0	**Interpersonal Skills & Responsibility**		
3.1	**Manage resources, time and collaborate with members of the group.**	1. Team work groups for cooperative work making. 2. Presenting the analysis and interpretation of a case study for each group to the other groups in class. 3.Open a general discussion with students in the area of educational issues for knowledge transfer between the students.	1.Writing group scientific report for a case study. 2.Assessment of the solution of problems submitted by the students.
	Use university library and web search engines for collecting information and search about different topics .		
4.0	**Communication, Information Technology, Numerical**		
4.1	**Work effectively both in a team, and independently on solving chemistry problems.**	1.Write a Report 2.Use digital libraries and/or E-Learning Systems for the communication with lecturer through the course work	1.Evaluating the activities of the students through the semester for their activities on the E-learning system, as well as, their communication with each other in different tasks. 2.Evaluation of the report presented
4.2	**Communicate effectively with his lecturer and colleagues**		
4.3	**Use IT and web search engines for collecting information**.		
5.0	**Psychomotor**		
5.1	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	**Exam**	**5-14**	**40%**

2	**Assignments**	**-**	**10%**
4	**Final Exam**	**16**	**50%**

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

Handbook of Applied Surface and Colloid Chemistry, Vol. 1-2, Holmberg, Krister, John Wiley & Sons, 2002, New York

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

Emulsions, Foams, and Suspensions: Fundamentals and Applications, Laurier L. Schramm, WILEY-VCH Verlag GmbH & Co, 2005, K Ga A, Weinheim

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

none

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.** • **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 Ahmed Fawzy Saad

Signature: **Date Report Completed: 2016**

Received by: Dr Hatem Altass **Dean/Department Head**

Signature: _____ Date: _____