ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

COURSE SPECIFICATION

General Chemistry 1

4021101-4

1440 / 1441 H

Course Specification

Institution: Umm Al-Qura University
College/Department: Faculty of Applied Sciences / Chemistry Department

A. Course Identification and General Information

1. Course title and code: General Chemistry 1, 48021200-4
2. Credit hours: Four (3 theoretical + 1 practical) hrs.
3. Program(s) in which the course is offered (If general elective available in many programs indicate this rather than list programs): • **Chemistry** • **Industrial Chemistry** • **Physics** • **Medical Physics** • **Biology** • **Microbiology** • **Mathematics**
4. Name of faculty member responsible for the course: Prof. Mohamed Ismail Awad
5. Level/year at which this course is offered: 1st / 1
6. Pre-requisites for this course (if any): ---------
7. Co-requisites for this course (if any): ---------
8. Location if not on main campus: ----------

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course. This course is an introductory chemistry course designed to prepare students for college level chemistry courses. The course introduces some basic principles of chemistry.
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 use of teaching intelligent classes for lectures. • Encourage students to prepare reports in general topics in chemistry. • The use of information technology or the Internet in order to increase awareness of the concepts of chemistry.

• Link the theoretical and practical sides of the course to help the students to understand and interpret the properties of the chemical compounds.

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		
Topic	No of Weeks	Contact hours
Units of measurements; SI- units, intensive and extensive properties, uncertainty in measurements (precision and accuracy).	1	3
Significant figures: Rounding significant figures, Using significant figures in addition, subtraction, multiplication and divisions.	1	3
States of matter and measurement, molecules and molecular compounds.	1	3
Stoichiometry, atomic and molecular weights.	1	3
The mole, simple quantitative calculations with chemical reactions.	1	3
Chemical reactions in solutions	1	3
Basics of chemical equilibrium.	2	6
Acids and bases.	1	3
Gases	2	6
Thermochemistry.	1	3
Electrochemistry	2	6

Laboratory Experiments Outline

Topics to be Covered		
List of Experiments The practical part includes the following experiments:	No of Weeks	Contact hours
Introduction	**1**	**3**
Density and viscosity of liquids.	**1**	**3**
Compound type (polar – nonpolar – ionic).	**1**	**3**
Chemical reactions.	**1**	**3**
Acids and bases and pH measurements and calculations.	**1**	**3**
Titration of vinegar.	**1**	**3**
Oxidation-reduction reactions.	**1**	**3**
Molar mass of acid.	**1**	**3**
Qualitative analysis (acidic and basic radicals).	**1**	**3**
Colligative properties (determination of molecular weight).	**1**	**3**

Determination of the heat capacity of the calorimeter.	**1**	**3**
Determination of the critical solution temperature of phenol - water system	**1**	**3**
Review	**1**	**3**
Final Exam.	**1**	**3**

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

Lecture:	Tutorial:	Practical/Fieldwork/Internship:	Other:
42	---	**42**	

3. Additional private study/learning hours expected for students per week. (This should be an average: for the semester not a specific requirement in each week)
- 28 hours (2 hrs per week office hrs).

4. Development of Learning Outcomes in Domains of Learning
For each of the domains of learning shown below indicate:
A brief summary of the knowledge or skill the course is intended to develop;
A description of the teaching strategies to be used in the course to develop that knowledge or skill.
The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.

Knowledge

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0			
1.1	Knows International system of units	Lectures Scientific discussion Library visits Web-based study	Exams portfolios long and short essays posters lab manuals
1.2	Familiar with the laws that describe the behavior of ideal gases.		
1.3	Mention the first law of thermodynamics.		
1.4	List the factors affecting equilibrium position and equilibrium concentration.		
2.0	Cognitive Skills		
2.1	Summarize gases laws	Lectures Scientific discussion homework assignment containing problem thinking activities	1. Midterm exam 2.quizzes 3.Final exam
2.2	Compare between ideal and real gases		
2.3	Apply Hess's law for the calculation of heat of reaction.		
2.4	Apply Faraday's laws for calculating the amount deposited at electrodes		

2.5	Predict the spontaneity of chemical reaction.			
3.0	Interpersonal Skills & Responsibility			
	• Manage resources, time and collaborate with members of the group. • Ability to work independently to handle Chemicals and perform laboratory illustrations safely. • Ability to communicate results of work to classmates. • Ability to work in a team to perform a specific task	Team work groups General discussion with students for solving a problrm.	Assessment of the solution of problems submitted by the students.	
4.0	Communication, Information Technology, Numerical			
	• Work effectively both in a team, and independently on solving chemistry problems. • Communicate effectively with his lecturer and colleagues • Use university library and web search engines for collecting information and search about different topics .	Write a Report Use libraries	Evaluation of the report presented	
5.0	Psychomotor			
5.1	NOT APPLICABLE			
5.2				

Course Total grade points are (100) Points distributed based on the following percentages:

#	Assessment task	Week due
1	Class activities, Attendances and Online activates (15%): • Attendance (5%). • Class Activities (3%). • Online Activities (7%)	Throughout the Term
2	Mid-Term Exams (20%): • 1st term (10%). • 2nd term (10%).	week 5 week 14
3	Lab Activity (5%).	Throughout the Term
5	Final Exam on Lab (20%).	End of the Term
6	Final Exam. (2 hours exam) (40%).	End of the Term

Class activities, Attendances and Online activities (15%):

- Attendance (5% - 5 Points):
  - 4 % for the lectures.
  - 1% for the online sessions.
- Class Activities (3%- 3 Points): Class discussions.
- Online activities (7%- 7 points):
  - 700 Points, will be calculated based on the following criteria:
    420 points for Module quizzes (7 x 60 = 420).
    280 points for Module Discussion forums participation (7 x 40 = 280).

Lab Activity (5% - 5 Points):

- 4 % for attending and doing the lab.
- 1 % for completing lab assignments and upload it to the system.

Grade will be awarded according to the following scale:

90 - 100 = A
80 - 89 = B
70 - 79 = C
60 - 69 = D
Below 60 = F

D. Student Support

1. Arrangements for availability of faculty for individual student consultations and academic advice. (include amount of time faculty are available each week) Presence of faculty members to provide counselling and advice. Office Hours: weekly during working hours, and to create appropriate means. Academic Advising for students to those who need it, and taking into account the appropriate test for that Member.

E Learning Resources

1. Required Text(s) **P. Atkins and J. de Paula**, Physical Chemistry, 10th ed., 2006, New York.
2. Essential References Steven S. Zumdahl, Susan A. Zumdahl, 9th ed., 2009, New York.
3. Recommended Books and Reference Material (Journals, Reports, etc) (Attach List) Chemistry, R. Chang, 10th Edition, McGraw-Hill Higher Education, 2011.
4. Electronic Materials, Web Sites etc Power point lectures.
5. Other learning material such as computer-based programs/CD, professional standards Microsoft PowerPoint, Microsoft Word

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (ie number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Lecture rooms, laboratories, etc.) Classroom capacity (60) students. To supply the classrooms with the appropriate educational means.
2. Computing resources Hall is equipped with a computer and Data Show and TV.
3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list) None

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. **Assess the progress of the operation by the students using the evaluation forms or group discussion in order to reach weaknesses and processed.**

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. • Work shops for teachers of the course.

Faculty or Teaching Staff: **Professor Mohamed Awad**

Signature: **Date Report Completed: March 2018**

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

Signature: _____ **Date: _____**