ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications
(CS)

General Chemistry CHEM-226

Course Specifications

Institution Majmaah University	Date of Report: 12 / 7 / 1435
College/Department : Science / Medical laboratories	

A. Course Identification and General Information

1. Course title and code: General Chemistry CHEM-226

2. Credit hours: 2

3. Program(s) in which the course is offered Computer Science(B.Sc.)
(If general elective available in many programs indicate this rather than list programs)

4. Name of faculty member responsible for the course: Ahmed Khamis Salama

5. Level/year at which this course is offered: Third level

6. Pre-requisites for this course (if any): nil

7. Co-requisites for this course (if any): nil

8. Location if not on main campus: College of Science, Zilfi

9. Mode of Instruction (mark all that apply)

a. Traditional classroom	■	What percentage?	70 %
b. Blended (traditional and online)	■	What percentage?	25%
c. e-learning		What percentage?	
d. Correspondence		What percentage?	
f. Other	■	What percentage?	5 %

Comments:

B Objectives

1. What is the main purpose for this course? - Review the concepts of basic chemistry - Explain interested examples of how chemistry applies to life - Describe the matter and its classification, states, physical and chemical properties - Study the measurements and dimensional analysis in solving problems - Study atoms, molecules and ions - Describe the mass relationships in chemical reactions - Study the gases and their laws - Study the chemical bonding - Study the chemical equilibrium - Study acids and bases
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) 1. Changes in content as a result of new research in the field. 2. Using new references. 3. Using web references. 4. Increase use of IT 5. Video material

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
Chemistry: The study of change	1	2
Atoms, molecules and ions	3	6
Mass relationships in chemical reactions	3	6
Gases	2	4
Chemical bonding	1	2
Chemical equilibrium	2	4
Acids and bases	2	4

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

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

8 office hours and 10 hours self-study, solve problems in chemistry and visiting websites via internet

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

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The ***National Qualification Framework*** provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Describe the matter and its classification, states, physical and chemical properties	- Lectures - Solving problems - Video tutorial - Discussion	• Midterm exams • Periodical short quizzes • Discussion and team work
1.2	- Study the measurements and dimensional analysis in solving problems		
1.3	- Study atoms, molecules and ions		
1.4	- Describe the mass relationships in chemical reactions		
1.5	- Study the gases and their laws		
1.6	- Study the chemical bonding		
1.7	- Study the chemical equilibrium		
1.8	- Study acids and bases		
2.0	**Cognitive Skills**		
2.1	Solving problems in chemistry	- Lectures - Discussion	• Class Participation • Presentation • Essay Question
2.2	Solving practice exercises		
3.0	**Interpersonal Skills & Responsibility**		
3.1	Solving practice exercises	- Lectures - Problem solving - Group Discussion	• Class Participation • Presentation • Essay Question
3.2	Review questions		
3.3	Review model answers		
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicate with teacher, ask questions, solve problems, and use computers.	• Exercises • Problem solving • Essay questions	• Write reports and power point presentation • Exercises related to specific topics
4.2	Illustrate deal.		
4.3	Operate questions during the lecture, work in groups, and communicate with each other.		
5.0	**Psychomotor**		
5.1	Not applicable		
5.2	Not applicable		

Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

NQF Learning Domains	Suggested Verbs
Knowledge	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
Cognitive Skills	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
Interpersonal Skills & Responsibility	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write
Communication, Information Technology, Numerical	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize
Psychomotor	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct

Suggested ***verbs not to use*** when writing measurable and assessable learning outcomes are as follows:

Consider	Maximize	Continue	Review	Ensure	Enlarge	Understand
Maintain	Reflect	Examine	Strengthen	Explore	Encourage	Deepen

Some of these verbs can be used if tied to specific actions or quantification.

Suggested assessment methods and teaching strategies are:

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

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	First Midterm	6th	20 %
2	Second Midterm	12th	20%
3	Review and oral presentation	12th	10 %
4	Group discussion and activities	Every week	10%
6	Final written Examination	15th	40 %

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)
8 hours each week for student consultation and academic advice

E. Learning Resources

1. List Required Textbooks-
- Chemistry, Raymond Chang, Tenth edition, 2010, Mc Graw Hill - Chemistry- Principles and reactions , Masterton, W.L. and Hurley, C.N. Third edition, 1997, Saunders College Publishing
2. List Essential References Materials (Journals, Reports, etc.) - General Chemistry, McMurry, J. and Robert, F. International Edition 2009. - General Chemistry, John W. Hill, Ralph H. Petrucci, Terry W. McCreary, and Scott S. Perry., 4th edition, 2005 , Pearson / Prentice Hall Publishing Company, New Jersey.
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
J. AOAC J. Analytical chemistry J. Organic Chemistry
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) http://www.chemistry.ohio-state.edu
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Tutorial CD, video clips, Microsoft office, power point and active inspiration.

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.) - Class rooms are well lightened and ventilated with enough space and chairs.

- Laboratories are equipped with apparatus, instruments, material, and laboratory facilities for laboratory tests and experiments.

2. Computing resources (AV, data show, Smart Board, software, etc.) - Smart Board is available - Computers and internet are available for online study and video tutorials.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) The course is theoretical only.

G Course Evaluation and Improvement Processes

1- Strategies for Obtaining Student Feedback on Effectiveness of Teaching - Student evaluation about the course electronically organized by the University - Student satisfaction about the examination.
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor - Department committee evaluation - Student satisfaction report about the course and examination - Internal reviewers reports
3 Processes for Improvement of Teaching 1. Course report. 2. Program report. 3. Training Courses

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)

Efficiency of course will be reflected on the results of the class, which reviewed by members of the teaching staff in addition to other duties such as discussing ideas and ways of teaching and learning. The course should be developed periodically to ensure that it contains the latest developments in the field of study.

Development could be set as an objective in the report of the course to be achieved each semester.

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

1- Course Evaluation

2- Exam Evaluation

3- Improvement plan depends on the students and internal viewer feedback.

Faculty or Teaching Staff: Ahmed Khamis Salama

Signature: *Ahmed Khamis Salama* **Date Report Completed: 12/ 7/ 1435**

Received by: _____ Dean/Department Head

Signature: _____ Date: _____