



## Course Specifications

<b>Course Title:</b>	General Chemistry
<b>Course Code:</b>	204124-2
<b>Program:</b>	Bachelor in Computer Science
<b>Department:</b>	Department of Chemistry
<b>College:</b>	College of Science
<b>Institution:</b>	Taif University

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## A. Course Identification

<b>1. Credit hours:</b> 2
<b>2. Course type</b>
a. University <input type="checkbox"/> College <input checked="" type="checkbox"/> Department <input type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
<b>3. Level/year at which this course is offered:</b> 3/1
<b>4. Pre-requisites for this course (if any):</b> NON
<b>5. Co-requisites for this course (if any):</b> NON

### 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3	100%
2	Blended	0	0
3	E-learning	0	0
4	Distance learning	0	0
5	Other	0	0

### 7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	0
3	Tutorial	0
4	Others (specify)	0
	<b>Total</b>	<b>30</b>

## B. Course Objectives and Learning Outcomes

### 1. Course Description

Introduction(Matter and Measurement), Atoms, Molecules, and Ions, Chemical Reactions and Reaction Stoichiometry, Aqueous Reactions and Solution Stoichiometry, Thermochemistry , Electronic Structure of Atoms, Periodic Properties of the Elements,Basic Concepts of Chemical Bonding, Molecular Geometries and Bonding Theories,Gases.

### 2. Course Main Objective

Build good foundation in chemical knowledge

### 3. Course Learning Outcomes

CLOs		Aligned PLOs
1	<b>Knowledge and Understanding</b>	
1.1	Recognize the international system of units (SI), the molecular geometries, the gas laws, acid and base concepts.	K1
1.2	Write and balance the chemical equations and the electronic configuration,	K1



CLOs		Aligned PLOs
1.3	Describe the Rutherford's atomic model, the Hund's rule	K1
<b>2</b>	<b>Skills :</b>	
2.1	Distinguish between the atomic symbols.	S1
2.2	Classify the chemical formulas.	S1
2.3	Calculate the number of moles and atoms, the molecular weight, the elemental percentage, the molar fraction and molarity, pH value and $\Delta H$ from $\Delta E$ and $P\Delta V$	S1
2.4	Interpret the hybridization of atomic orbitals.	S1
2.5	Sketch and label the blocks of the periodic table of elements.	S1
2.6	Relate the atomic radius of element and the ionization energy	S1
<b>3</b>	<b>Values:</b>	
3.1	Work in groups	V1
3.2	Cooperate with his colleges	V2

### C. Course Content

No	List of Topics	Contact Hours
1	Introduction: Matter and Measurement.	2
2	Atomic theory and Chemical Formulas and.	2
3	Stoichiometry.	2
4	Combination.	2
5	Solutions.	2
6	Acids and Bases.	2
7	Electrostatic potential energy .	2
8	Hess's Laws and Revision.	2
9	Quantum Mechanics	2
10	Atomic Electron Configurations..	2
11	Properties of Periodic Table	2
12	Molecular Shapes	2
13	Hybrid Orbitals	2
14	Gases laws	2
15	Dalton's Law of Partial Pressures and V.Kinetic-Molecular Theory	2
<b>Total</b>		<b>30</b>

### D. Teaching and Assessment

#### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
<b>1.0</b>	<b>Knowledge and Understanding</b>		
1.1	Recognize the international system of units (SI), the molecular geometries, the gas laws, acid and base concepts.	<b>Lecture</b>	<b>MID and Final</b>
1.2	Write and balance the chemical equations and the electronic configuration,	<b>Lecture</b>	<b>MID and Final</b>
1.3	Describe the Rutherford's atomic model, the Hund's rule	<b>Lecture</b>	<b>MID and Final</b>



Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.4	Define the mean of molecular biology	Lecture and discussion	Quizzes, Exams
1.5	Define Nucleic acids, the flow of genetic information, cloning		
<b>2.0</b>	<b>Skills</b>		
2.1	Distinguish between the atomic symbols.	Project and group discussion	Exams
2.2	Classify the chemical formulas.		
2.3	Calculate the number of moles and atoms, the molecular weight, the elemental percentage, the molar fraction and molarity, pH value and $\Delta H$ from $\Delta E$ and $P\Delta V$		
2.4	Interpret the hybridization of atomic orbitals.		
2.5	Sketch and label the blocks of the periodic table of elements.		
2.6	Relate the atomic radius of element and the ionization energy		
<b>3.0</b>	<b>Values</b>		
3.1	Work in groups	Project and group discussion	Oral discussion and Assignment
3.2	Cooperate with his colleges		
3.1	Work in groups		

## 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Class participation (regular attendance, quizzes, read/report work and homework).	3rd, 4th, 6th And 9th	20 marks
2	Exams1.	4th	15 marks
3	Exams2.	10th	15
4	Comprehensive Final-exam.	12th	50 marks

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

### Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Academic advising and counseling of students is an important component of teaching; student academic advising is a mandatory requirement of College of Computers and Information Technology (CCIT). Appropriate student advising provides support needed for the student during times of difficulty. In addition, it helps the student to build a close relationship with his/her advisor and to provide student motivation and involvement with the institution.

In addition, since faculty are usually the first to recognize that a student is having difficulty, faculty members play a key role in developing solutions for the students or referring them to appropriate services. Faculty members also participate in the formal student-mentoring program.



Additional counseling is provided by course directors, who provide students with academic reinforcement and assistance and refer “at risk” students to the Vice Dean for Academic Affairs and the Vice Dean for female section.

## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	Raymond Chang - Chemistry (12th Edition) (2015-01-23) [Hardcover] Hardcover – January 23, 2015
<b>Essential References Materials</b>	NON
<b>Electronic Materials</b>	Web Sites on the internet that as relevant to topics of the course.
<b>Other Learning Materials</b>	Multi media / CD associated with the textbooks ( when available ).

### 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	Traditional Classrooms
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	White Board, data show
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	NON

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students	Students’ surveys and Students course evaluation
Improvement of Teaching	Course Coordinator	deficiencies based on the student Evaluation, faculty input, course file, and program assessment
Verifying Standards of Student Achievement	Curriculum Committee	<ul style="list-style-type: none"> <li>Review CAF (Course assessment file)</li> <li>Alumni surveys.</li> </ul> Periodic exchange and remarking of tests or a sample



Evaluation Areas/Issues	Evaluators	Evaluation Methods
		of assignments with staff at another

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

Council / Committee	CS council
Reference No.	Meeting #12
Date	23-10-1443

