

Republic of Yemen  
Ministry of Higher Education & Information Technology  
Emirates International University



**Faculty of –Medicine and Health Science**

Department of Clinical Pharmacy

Bachelor of Pharm D

**Course Specification of**

General Chemistry

Course No. (PHYSC 112)



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Prepared by:

Dr. Dr. Mokhtar Al-Gharafi

Reviewed by:

Dr.

Head of the Department:

Quality Assurance head

Dean:

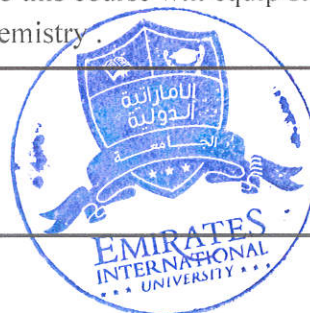


## I. Course Identification and General Information:

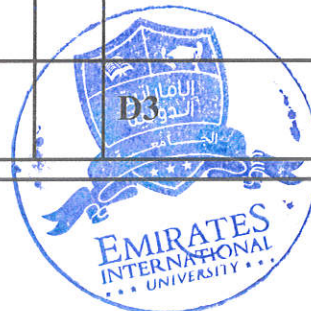
1	Course Title:	General Chemistry			
2	Course Code & Number:	PHYSC 112			
3	Credit Hours:	Credit Hours	Theory Hours		Lab. Hours
			Lecture	Exercise	
		3	2	--	3
4	Study Level/ Semester at which this Course is offered:	1 Level / 1st Semester			
5	Pre –Requisite (if any):	-----			
6	Co –Requisite (if any):	None			
7	Program (s) in which the Course is Offered:	Bachelor of Pharm D			
8	Language of Teaching the Course:	English			
9	Study System:	Semester based System			
10	Mode of Delivery:	Full Time			
11	Location of Teaching the Course:	Faculty of Medicine and Health Sciences			
12	Prepared by:	Dr. Mokhtar Al-Ghorafi			
13	Date of Approval:				

## II. Course Description:

This course provides the students with the basic knowledge about general chemistry including the properties of matter, the elements of life ,chemical equilibrium, spectrometry, acid-base concepts, solutions thermodynamics, kinetics, electrochemistry, nuclear chemistry, and an introduction to organic chemistry and biochemistry. Also this course will equip students with the necessary knowledge to understand basic concepts of chemistry.



III. Course Intended Learning Outcomes (CILOs) : <b>(maximum 8)</b> Upon successful completion of the course, students will be able to:		Referenced PILOs Learning out of program	
<b>A. Knowledge and Understanding:</b>		I, A or E	
a1	Identify the matter and its classification states, atoms, molecules , ions and physical and chemical properties		A1,A3
a2	Describe the principles of chemical bonding ,solutions, chemical kinetics, chemical equilibrium, and acid/base reactions.		
<b>B. Intellectual Skills:</b>			
b1	Explain the intermolecular forces ,states of matter, buffer and acid-base reaction		B6
b2	Discus the principles of chemical bonding ,solutions, chemical kinetics, chemical equilibrium, acid/base reactions, and basic concepts of chemistry		
<b>C. Professional and Practical Skills:</b>			
c1	Handle basic laboratory equipments and chemicals effectively and safely.		C1
c2	Write systematic laboratory reports including experimental procedures, observations and conclusions		C1
<b>D. Transferable Skills:</b>			
d1	Work effectively as part of a team to collect data and/or produce reports and presentations		D3
d2	Develop the decision making and problem solving abilities		





<b>(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:</b>		
Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
a1 Identify the matter and its classification states, atoms, molecules, ions and physical and chemical properties	<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Seminars</li> <li>- Discussion</li> </ul>	<ul style="list-style-type: none"> <li>- Quizzes</li> <li>- Mid-term Exam</li> <li>- Final Written Exam</li> </ul>
a2 Describe the principles of chemical bonding, solutions, chemical kinetics, chemical equilibrium, and acid/base reactions.	<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Seminars</li> <li>- Discussion</li> </ul>	<ul style="list-style-type: none"> <li>- Quizzes</li> <li>- Mid-term Exam</li> <li>- Final Written Exam</li> </ul>
<b>(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:</b>		
Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
b1 Explain the intermolecular forces, states of matter, buffer and acid-base reaction	<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Seminars</li> <li>- Discussion</li> </ul>	<ul style="list-style-type: none"> <li>- Quizzes</li> <li>- Mid-term Exam</li> <li>- Final Written Exam</li> </ul>
b2 Discuss the principles of chemical bonding, solutions, chemical kinetics, chemical equilibrium, acid/base reactions, and basic concepts of chemistry	<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Seminars</li> <li>- Discussion</li> </ul>	<ul style="list-style-type: none"> <li>- Quizzes</li> <li>- Mid-term Exam</li> <li>- Final Written Exam</li> </ul>
<b>(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:</b>		
Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
c1 Handle basic laboratory equipments and chemicals effectively and safely.	<ul style="list-style-type: none"> <li>▪ Lectures.</li> <li>▪ Lab Experiments</li> </ul>	<ul style="list-style-type: none"> <li>▪ laboratory and other written reports</li> <li>▪ Quizzes</li> <li>▪ Final Practical Exam</li> </ul>
c2 Write systematic laboratory	<ul style="list-style-type: none"> <li>▪ Lectures.</li> </ul>	<ul style="list-style-type: none"> <li>▪ laboratory and other</li> </ul>

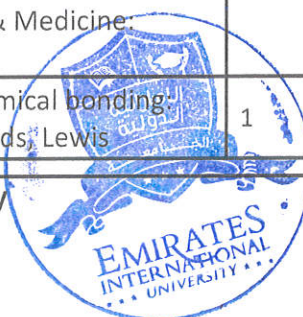


	reports including experimental procedures, observations and conclusions	<ul style="list-style-type: none"> <li>Lab Experiments</li> </ul>	<ul style="list-style-type: none"> <li>written reports</li> <li>Quizzes</li> <li>Final Practical Exam</li> </ul>
<b>(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:</b>			
	<b>Course Intended Learning Outcomes</b>	<b>Teaching Strategies</b>	<b>Assessment Strategies</b>
d1	Work effectively as part of a team to collect data and/or produce reports and presentations	<ul style="list-style-type: none"> <li>Discussion</li> <li>Self Learning</li> <li>Seminars</li> </ul>	<ul style="list-style-type: none"> <li>Discussion.</li> <li>Group work</li> </ul>
d2	Develop the decision making and problem solving abilities	<ul style="list-style-type: none"> <li>Discussion</li> <li>Self Learning</li> <li>Seminars</li> </ul>	<ul style="list-style-type: none"> <li>Discussion.</li> <li>Group work</li> </ul>
	...	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>

#### IV. Course Contents:

##### A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	<ul style="list-style-type: none"> <li>Atomic and Electronic Structure</li> <li>Focus on the Human Body: The Elements of life</li> </ul>	Introduction to chemistry: matter: classification, state of matters, properties of matters, measurements, units .  Focus on the Human Body: The Elements of life	1	2	a1,a2,b1 ,b2
2	<ul style="list-style-type: none"> <li>Atoms, Molecules, and Ions</li> </ul>	Atoms, Molecules, and Ions: The Atomic Theory, The Structure of the Atom ,Atomic Number, Mass Number, Isotopes, The Periodic Table Molecules and Molecular compounds, Ions and ionic compounds, Chemical Formulas,  Life Focus on Health & Medicine: Isotopes in Medicine	1	2	a1,a2,b1 ,b2
3	<ul style="list-style-type: none"> <li>Basic concepts of chemical</li> </ul>	Basic concepts of chemical bonding: types of chemical bonds, Lewis	1	2	a1,a2,b1





No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
	bonding	symbols, and the Octet Rule ,covalent bonding, bond polarity and electronegativity, Lewis structure, , strengths of covalent bond. electronegativity and bond polarity ,polarity of molecules .Focus on Health & medicine: covalent drugs and medical product.			,b2
4	Ionic Compounds	Introduction to bonding . Ions - cations and anions Relating group number to ionic charge for main group elements. Metals with variable charge . Focus on the human body: Important ions in the Body .	1	2	a1,a2,b1 ,b2
5	<ul style="list-style-type: none"> <li>Molecular geometry , bonding theory</li> </ul>	Molecular geometry , bonding theory and hybridization : Molecular shapes, Molecular shape and molecular polarity, Covalent bonding and orbital overlap, Hybrid orbitals, multiple bonds, molecular orbitals , application of molecular orbitals in drug interaction	1	2	a1,a2,b1 ,b2
6	Midterm		1	2	a1,a2,b1 ,b2
7	Equilibrium	Equilibrium -The Equilibrium Constant -The Magnitude of the Equilibrium Constant -Le Châtelier's Principle -Concentration Changes -Temperature Changes -Pressure Changes Focus on the Human Body: Body Temperature	1	2	a1,a2,b1 ,b2
7	Solutions	Solutions - Osmosis and Biological Membranes	1	2	a1,a2,b1 ,b2

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
		- Dialysis - Osmosis and Biological Membranes			
8	Chemical kinetics, introduction, reaction	Chemical kinetics, introduction, reactions, Applications in human body	1	2	a1,a2,b1 ,b2
9	Acids and Bases	Acids and Bases ,introduction to acids and bases ,Bronsted–Lowry acids ,relating acid and base strength ,equilibrium and acid dissociation Constants ,dissociation of Water ,the pH Scale ,calculating pH ,Focus on the Human Body: The pH of Body Fluids.	1	2	a1,a2,b1 ,b2
10	pH	pH of strong acids and bases , weak acids ,weak bases. The pH: The pH of Body Fluids ,Applications in human body buffer : definition ,prepartions, calculations of pH	1	2	a1,a2,b1 ,b2
11	Thermochemistry:	Thermochemistry,energy Focus on the Human Body: Energy and Nutrition	1	2	a1,a2,b1 ,b2
12	Electrochemistry& Nuclear Chemistry	Electrochemistry Nuclear Chemistry Focus on the Human Body	1	2	a1,a2,b1 ,b2
12	The chemistry biomolecules:	carbohydrate, protein ,lipids Focus on the Human Body	2	4	a1,a2,b1 ,b2
13	Final exam		1	2	a1,a2,b1 ,b2
<b>Number of Weeks /and Units Per Semester</b>			<b>16</b>	<b>32</b>	

### B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Week Due	Contact Hours	Learning Outcomes (CILOs)
1	Safety practices in the chemistry	Week 1	2	c1,c2



No.	Tasks/ Experiments	Week Due	Contact Hours	Learning Outcomes (CIOs)
2	Laboratory equipment and density	Week 2	2	c1,c2
3	Solubility test	Week 3	2	c1,c2
4	Solubility of Salt	Week 4	2	c1,c2
5	Solubility patterns and $K_{sp}$	Week 5	2	c1,c2
6	pH scale $K_a$ of a Weak Acid	Week 6,7	4	c1,c2
7	Melting and boiling point	Week 8	2	c1,c2
8	Crystallization	Week 9	2	c1,c2
9	Sublimation	Week 10	2	c1,c2
10	Extraction	Week 11	2	c1,c2
11	Distillation	Week 12	2	c1,c2
12	Steam distillation	Week 13	2	c1,c2
13	Qualitative test for elements	Week 14	2	c1,c2
14	<b>Final Exam</b>	Week 15	2	c1,c2
<b>Number of Weeks /and Units Per Semester</b>		<b>15</b>	<b>30</b>	

### V. Teaching Strategies of the Course:

- Lectures
- Presentation
- Discussion
- Self-learning
- Lab Experiments
- 

### :VI. Assessment Methods of the Course ▪



- Quizzes
- Midterm Exam
- Final Written Exam
- Final Practical Exam
- laboratory and other written reports
- Lab Experiments
- Discussion.
- 

### VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	Assignments : Searching about related subjects of elements on human body	10 <sup>th</sup>	5	a1,a2,b1,b2
<b>Total</b>			<b>5</b>	

### VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignments	10 <sup>th</sup>	5	5 %	a1,a2,b1,b2
2	Quiz	6 <sup>th</sup>	5	5 %	a1,a2,b1,b2
3	Mid-Term Theoretical Exam	8 <sup>th</sup>	20	20 %	a1,a2,b1,b2
4	Final Practical Exam	15 <sup>th</sup>	20	20 %	c1,c2
5	Final Theoretical Exam	16 <sup>th</sup>	50	50 %	a1,a2,b1,b2
<b>Total</b>			<b>100</b>	<b>100%</b>	

### IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, Title, Edition, Place of publication, Publisher.

#### 1- Required Textbook(s) ( maximum two ):

- 1- Petrucci, Ralph H., et al. 2017, General chemistry: principles and modern applications. Pearson, 11th edition, Toronto : Prentice Hall
- 2- . George I Sackheim; Dennis D Lehman, 2009, Chemistry for the health sciences, 8th edition, Upper Saddle River, N.J. : Pearson/Prentice-Hall

<b>2- Essential References:</b>
1- Raymond Chang; Kenneth A Goldsby ,( 2014 ),General chemistry: the essential concepts. 7th edition , New York, NY : McGraw-Hill 2-,Martin S Silberberg,2013, <b>Principles of general chemistry</b> ,3rd edition, New York : McGraw-Hill
<b>3- Electronic Materials and Web Sites etc.:</b>
<b>Websites:</b> <a href="https://www.khanacademy.org/science/chemistry">https://www.khanacademy.org/science/chemistry</a>

<b>X. Course Policies: (Based on the Uniform Students' By law (2007))</b>	
<b>1</b>	<b>Class Attendance:</b> Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
<b>2</b>	<b>Tardiness:</b> A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
<b>3</b>	<b>Exam Attendance/Punctuality:</b> No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
<b>4</b>	<b>Assignments &amp; Projects:</b> Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
<b>5</b>	<b>Cheating:</b> Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
<b>6</b>	<b>Forgery and Impersonation:</b> Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
<b>7</b>	<b>Other policies:</b> The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.



## Faculty of –Medicine and Health Science

Bachelor of

## Course Plan (Syllabus) of General Chemistry

Course No. ( PHYSC 112)

I. Information about Faculty Member Responsible for the Course:							
Name of Faculty Member:	Dr. Mokhtar Al-Ghorafi	Office Hours					
Location & Telephone No.:							
E-mail:		SAT	SUN	MON	TUE	WED	THU



## II. Course Identification and General Information:

1	Course Title:	General Chemistry			
2	Course Code & Number:	PHYSC 112			
3	Credit Hours:	Credit Hours	Theory Hours		Lab. Hours
			Lecture	Exercise	
		3	2	--	3
4	Study Level/ Semester at which this Course is offered:	1 Level / 1st Semester			
5	Pre –Requisite (if any):	-----			
6	Co –Requisite (if any):	None			
7	Program (s) in which the Course is Offered:	Bachelor of Pharm D			
8	Language of Teaching the Course:	English			
9	Study System:	Semester based System			
10	Mode of Delivery:	Full Time			
11	Location of Teaching the Course:	Faculty of Medicine and Health Sciences			
12	Prepared by:	Dr. Mokhtar Al-Ghorafi			
13	Date of Approval:				

## III. Course Description:

This course provides the students with the basic knowledge about general chemistry including the properties of matter, the elements of life ,chemical equilibrium, spectrometry, acid-base concepts, solutions thermodynamics, kinetics, electrochemistry, nuclear chemistry, and an introduction to organic chemistry and biochemistry. Also this course will equip students with the necessary knowledge to understand basic concepts of chemistry.

## IV. Course Intended Learning Outcomes (CILOs) :



Upon successful completion of the Course, student will be able to:	
	<b>A. Knowledge and Understanding:</b>
a1	Identify the matter and its classification states, atoms, molecules, ions and physical and chemical properties
a2	Describe the principles of chemical bonding, solutions, chemical kinetics, chemical equilibrium, and acid/base reactions.
	<b>B. Intellectual Skills:</b>
b1	Explain the intermolecular forces, states of matter, buffer and acid-base reaction
b2	Discuss the principles of chemical bonding, solutions, chemical kinetics, chemical equilibrium, acid/base reactions, and basic concepts of chemistry
	<b>C. Professional and Practical Skills:</b>
c1	Handle basic laboratory equipments and chemicals effectively and safely.
c2	Write systematic laboratory reports including experimental procedures, observations and conclusions
	<b>D. Transferable Skills:</b>
d1	Work effectively as part of a team to collect data and/or produce reports and presentations
d2	Develop the decision making and problem solving abilities

V. Course Contents:				
A. Theoretical Aspect:				
No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
1	<b>Atomic and Electronic Structure</b> Focus on the Human Body: The Elements of life	<ul style="list-style-type: none"> <li>Introduction to chemistry: matter: classification, state of matters, properties of matters, measurements, units.</li> <li>Focus on the Human Body: The Elements of life</li> </ul>	1	2
2	<b>Atoms, Molecules, and Ions</b>	<ul style="list-style-type: none"> <li>Atoms, Molecules, and Ions: The Atomic Theory, The Structure of the Atom</li> </ul>	1	2

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
	-	,Atomic Number, Mass Number, Isotopes, The Periodic Table Molecules and Molecular compounds, Ions and ionic compounds, Chemical Formulas, Life Focus on Health & Medicine: Isotopes in Medicine		
3	Basic concepts of chemical bonding	– Basic concepts of chemical bonding: types of chemical bonds, Lewis symbols, and the Octet Rule, covalent bonding, bond polarity and electronegativity, Lewis structure, strengths of covalent bond. electronegativity and bond polarity, polarity of molecules. Focus on Health & medicine: covalent drugs and medical product.	1	2
4	Ionic Compounds	– Introduction to bonding . Ions - cations and anions Relating group number to ionic charge for main group elements. Metals with variable charge . Focus on the human body: Important ions in the Body .	1	2
5	Molecular geometry , bonding theory	– Molecular geometry , bonding theory and hybridization : Molecular shapes, Molecular shape and molecular polarity, Covalent bonding and orbital overlap, Hybrid orbitals, multiple bonds, molecular orbitals , application of molecular orbitals in drug interaction	1	2
6	Midterm		1	2
7	Equilibrium	– Equilibrium -The Equilibrium Constant -The Magnitude of the Equilibrium Constant -Le Châtelier's Principle	1	2



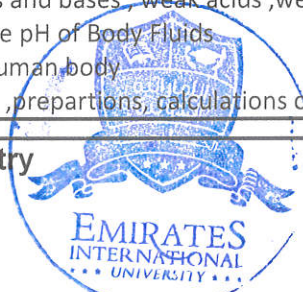
No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
		-Concentration Changes -Temperature Changes -Pressure Changes Focus on the Human Body: Body Temperatur		
7	Solutions	– Solutions - Osmosis and Biological Membranes - Dialysis - Osmosis and Biological Membranes	1	2
8	Chemical kinetics, introduction, reaction	– Chemical kinetics, introduction, reactions, Applications in human body	1	2
9	Acids and Bases	– Acids and Bases ,introduction to acids and bases ,Bronsted–Lowry acids ,relating acid and base strength ,equilibrium and acid dissociation Constants ,dissociation of Water ,the pH Scale ,calculating pH ,Focus on the Human Body: The pH of Body Fluids.	1	2
10	pH	– pH of strong acids and bases , weak acids ,weak bases. The pH: The pH of Body Fluids ,Applications in human body buffer : definition ,prepartions, calculations of pH	1	2
11	Thermochemistry:	– Thermochemistry,energy Focus on the Human Body: Energy and Nutrition	1	2
12	Electrochemistry & Nuclear Chemistry	– Electrochemistry Nuclear Chemistry Focus on the Human Body	1	2
12	The chemistry biomolecules:	– carbohydrate, protein ,lipids Focus on the Human Body	2	4
13	Final exam	–	1	2
Number of Weeks	16	32		

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
/and Unit s Per Semester				

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
1	<ul style="list-style-type: none"> <li>Atomic and Electronic Structure</li> </ul> Focus on the Human Body: The Elements of life	Introduction to chemistry: matter: classification, state of matters, properties of matters, measurements, units .  Focus on the Human Body: The Elements of life	1	2
2	Atoms, Molecules, and Ions	Atoms, Molecules, and Ions: The Atomic Theory, The Structure of the Atom ,Atomic Number, Mass Number, Isotopes, The Periodic Table Molecules and Molecular compounds, Ions and ionic compounds, Chemical Formulas,  Life Focus on Health & Medicine: Isotopes in Medicine	1	2
3	Basic concepts of chemical bonding	Basic concepts of chemical bonding: types of chemical bonds, Lewis symbols, and the Octel Rule ,covalent bonding, bond polarity and electronegativity, Lewis structure, , strengths of covalent bond.  electronegativity and bond polarity ,polarity of molecules .Focus on Health & medicine: covalent drugs and medical product.	1	2
4	Ionic Compounds	Introduction to bonding . Ions - cations and anions Relating group number to ionic charge for main group elements. Metals with variable charge . Focus on the human body: Important ions	1	2



No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
		in the Body .		
5	<ul style="list-style-type: none"> <li>Molecular geometry , bonding theory</li> </ul>	Molecular geometry , bonding theory and hybridization : Molecular shapes, Molecular shape and molecular polarity, Covalent bonding and orbital overlap, Hybrid orbitals, multiple bonds, molecular orbitals , application of molecular orbitals in drug interaction	1	2
6	Midterm		1	2
7	Equilibrium	<p>Equilibrium</p> <ul style="list-style-type: none"> <li>-The Equilibrium Constant</li> <li>-The Magnitude of the Equilibrium Constant</li> <li>-Le Châtelier's Principle</li> <li>-Concentration Changes</li> <li>-Temperature Changes</li> <li>-Pressure Changes</li> </ul> <p>Focus on the Human Body: Body Temperatur</p>	1	2
7	Solutions	<p>Solutions</p> <ul style="list-style-type: none"> <li>- Osmosis and Biological Membranes</li> <li>- Dialysis</li> <li>- Osmosis and Biological Membranes</li> </ul>	1	2
8	Chemical kinetics, introduction, reaction	Chemical kinetics, introduction, reactions, Applications in human body	1	2
9	Acids and Bases	Acids and Bases ,introduction to acids and bases ,Bronsted–Lowry acids ,relating acid and base strength ,equilibrium and acid dissociation Constants ,dissociation of Water ,the pH Scale ,calculating pH ,Focus on the Human Body: The pH of Body Fluids.	1	2
10	pH	pH of strong acids and bases , weak acids ,weak bases. The pH: The pH of Body Fluids ,Applications in human body buffer : definition ,prepartions, calculations of	1	2



No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
		pH		
11	Thermochemistry:	Thermochemistry,energy Focus on the Human Body: Energy and Nutrition	1	2
12	Electrochemistry& Nuclear Chemistry	Electrochemistry Nuclear Chemistry Focus on the Human Body	1	2
12	The chemistry biomolecules:	carbohydrate, protein ,lipids Focus on the Human Body	2	4
13	Final exam		1	2
<b>Number of Weeks /and Units Per Semester</b>			<b>16</b>	<b>32</b>

<b>B. Case Studies and Practical Aspect:</b>			
No.	Tasks/ Experiments	Week Due	Contact Hours
1	Safety practices in the chemistry	Week1	2
2	Laboratory equipment and density	Week 2	2
3	Solubility test	Week 3	2
4	Solubility of Salt	Week 4	2
5	Solubility patterns and $K_{sp}$	Week 5	2
6	pH scale $K_a$ of a Weak Acid	Week 6,7	4
7	Melting and boiling point	Week 8	2
8	Crystallization	Week 9	2
9	Sublimation	Week 1 0	2
10	Extraction	Week 11	2
11	Distillation	Week 12	2
12	Steam distillation	Week 13	2



No.	Tasks/ Experiments	Week Due	Contact Hours
13	Qualitative test for elements	Week 14	2
14	Final Exam	Week 15	2
<b>Number of Weeks /and Units Per Semester</b>	15	30	

No.	Tasks/ Experiments	Week Due	Contact Hours
1	Safety practices in the chemistry	Week 1	2
2	Laboratory equipment and density	Week 2	2
3	Solubility test	Week 3	2
4	Solubility of Salt	Week 4	2
5	Solubility patterns and $K_{sp}$	Week 5	2
6	pH scale $K_a$ of a Weak Acid	Week 6,7	4
7	Melting and boiling point	Week 8	2
8	Crystallization	Week 9	2
9	Sublimation	Week 10	2
10	Extraction	Week 11	2
11	Distillation	Week 12	2
12	Steam distillation	Week 13	2
13	Qualitative test for elements	Week 14	2
14	Final Exam	Week 15	2
<b>Number of Weeks /and Units Per Semester</b>		<b>15</b>	<b>30</b>

## VI. Teaching Strategies of the Course:

Lectures



<p>Presentation</p> <p>Discussion</p> <ul style="list-style-type: none"> <li>▪ Self-learning</li> <li>▪ Lab Experiments</li> <li>▪</li> </ul>
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### VII. Assessment Methods of the Course:

<ul style="list-style-type: none"> <li>-Quizzes</li> <li>- Midterm Exam</li> <li>- Final Written Exam</li> <li>-Final Practical Exam</li> <li>-laboratory and other written reports</li> <li>-Lab Experiments</li> <li>-Discussion.</li> <li>-</li> </ul>
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### VIII. Assignments:

No.	Assignments	Week Due	Mark
1	Assignments : Searching about related subjects of elements on human body	10th	5
<b>Total</b>	<b>5</b>		

### IX. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment

### X. Learning Resources:



- *Written in the following order: Author, Year of publication, Title, Edition, Place of publication, Publisher.*

### 1- Required Textbook(s) ( maximum two ):

- Petrucci, Ralph H., et al. 2017, *General chemistry: principles and modern applications*.  
Pearson, 11th edition, Toronto : Prentice Hall
- 3- . George I Sackheim; Dennis D Lehman, 2009, *Chemistry for the health sciences*, 8th edition, Upper  
Saddle River, N.J. : Pearson/Prentice-Hall

### 2- Essential References:

- 4- Raymond Chang; Kenneth A *Goldsby*, ( 2014 ), *General chemistry: the essential concepts*. 7th  
edition , New York, NY : McGraw-Hill
- 2-, Martin S Silberberg, 2013, **Principles of general chemistry**, 3rd edition, New York : McGraw-Hill

### 3- Electronic Materials and Web Sites etc.:

#### Websites:

<https://www.khanacademy.org/science/chemistry>

## XI. Course Policies: (Based on the Uniform Students' Bylaw (2007))

1	<b>Class Attendance:</b> Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	<b>Tardiness:</b> A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	<b>Exam Attendance/Punctuality:</b> No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	<b>Assignments &amp; Projects:</b> Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	<b>Cheating:</b> Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	<b>Forgery and Impersonation:</b> Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	<b>Other policies:</b> The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.