



<b>Lecturer (Theory)</b>	<b>Hemn Othman Salih</b>
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<b>Websites</b>	<a href="https://moodle.epu.edu.iq/course/index.php?categoryid=388">https://moodle.epu.edu.iq/course/index.php?categoryid=388</a>

## Course Book

<b>Course Description</b>	The student will investigate the fundamental concepts of chemistry from a theoretical approach and participate in a laboratory program that demonstrates this theory. The course is for students studying agriculture.
<b>Course objectives</b>	A basic course emphasizing the metric system, introduction to stoichiometry, the structural and physical properties of matter, chemical binding, and states of matter, i.e., gases, liquids and solids. Also, to familiarize the student with the basic concepts of chemistry, laboratory techniques and scientific thinking.
<b>Student's obligation</b>	Students are asked to do mandatory the following duties during the 12 weeks of the semester: 1- Quiz. 2- Weekly practical report. 3- Homework. 4- Seminars. 5- Semester report. 6- Lab. activity.
<b>Required Learning Materials</b>	Several materials and instruments are required in learning this unit, including: 1-Chemicals (Salts, acids, bases and solvents). 2-pH meter. 3- EC meter. 4-Balances.
<b>Specific learning outcome:</b>	1. Utilize critical thinking skills to learn fundamental chemical concepts from inorganic chemistry.

	<ol style="list-style-type: none"> <li>2. Use the scientific method to perform chemistry-based problem-solving.</li> <li>3. Identify unknown compounds based on observed physical properties.</li> <li>4. Describe how chemical reactions proceed.</li> <li>5. Run successful titration experiments.</li> <li>6. Explain the physical properties of solids, liquids, gases, and solutions.</li> </ol>	
<b>Course References:</b>	<ol style="list-style-type: none"> <li>1- <i>"General Chemistry Online – Companion Notes: Matter". Antoine.frostburg.edu. from the original on 24 June 2011. Retrieved 12 June 2011.</i></li> <li>2- <i>"What is Chemistry?". Chemweb.ucc.ie. Archived from the original on 3 October 2018. Retrieved 12 June 2011.</i></li> <li>3- <i>"Definition of chemistry   Dictionary.com". www.dictionary.com. Archived from the original on 5 March 2016. Retrieved 24 August 2020.</i></li> <li>4- <i>"What is Chemistry?". Chemweb.ucc.ie. Archived from the original on 3 October 2018. Retrieved 12 June 2011.</i></li> <li>5- <i>"International Year of Chemistry – The History of Chemistry". G.I.T. Laboratory Journal Europe. 25 February 2011. Archived from the original on 15 June 2013. Retrieved 12 March 2013.</i></li> </ol>	
<b>Course topics (Theory)</b>	<b>Week</b>	<b>Learning Outcome</b>
Introduction of General Chemistry		
Elements, Compounds & Mixtures		
Metric units and measurements.		
Atomic and molecular structure.		
The periodic table.		
The nature and types of chemical reactions.		
Balancing chemical reactions.		
Properties of solutions.		

The liquid and solid states.		
Chemical nomenclature.		
Acid-Base and Oxidation-Reduction Reactions		
The chemical bond		
<b>Practical Topics</b>	<b>Week</b>	<b>Learning Outcome</b>
Chemistry laboratory and its equipment		
pH and conductivity meters		
Measurements and Density		
Preparation of solutions		
Concentration units: types of Concentration units		
Molecular weight		
Prepare standard solution of Potassium Chloride		
To prepare standard solution of copper (II) sulphate and find out the strength of given copper (II) sulphate solution using sodium thiosulphate (Hypo solution) as an intermediate.		
Determination of Heat neutralization of strong acid and strong base.		
Prepare standard solution of Copper		
Titration of Acids and Bases		
Chemical fertilizer preparation calculations		

### Questions Example Design

#### Theory:

Q1/ Answer all 20 multiple-choice questions. 3.5 points each, 70 points in total.

Q2/ Answer 5 out of the 6 questions. 6 points each, 30 points in total.

Q3/ How many moles of magnesium (Mg) are there in 87.3 g of  $Mg_3N_2$ ? How many atoms of Mg are in 87.3 g of  $Mg_3N_2$ ? What is the molar mass of  $Mg_3N_2$ ?

Q4/ Why is it important to know the molecular mass distribution of a polymer?

Q5/ What is a differential distribution function?

**Extra notes:**

**External Evaluator:**