



## MODULE DESCRIPTION FORM

Module Information			
Module Title	Analytical chemistry		
Module Type	Basic	<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Semina	
Module Code	Zu-Sc- CRANACHE		
ECTS Credits	7		
SWL (her/Sem)	125		
Module Level	S		Semester of Delivery
Administering Department	Medical physics	College	College of science
Module Leader	Jehan Mahmood Najee		e-mail
Module Leader's Acad. Title	Assistant lecture	Module Leader's Qualification	Master
Module Tutor	Dr. Kareem Abd sager		e-mail Jehanjehan044@gmail.com
Peer Reviewer Name	Dr. Hussein Jasim Obaid		e-mail
Scientific Committee Approval Date		Version Number	

Relation with other Modules			
Prerequisite module	There is no	Semester	There is no
Co-requisites module	There is no	Semester	There is no



## Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	<p>Qualitative Analysis: Identifying the substance or components (what is present).</p> <p>Quantitative Analysis: Determining the exact amount or concentration of components (how much is present).</p> <p>Separation of Components: Isolating specific substances from complex mixtures (e.g., using Chromatography).</p> <p>Structural Analysis: Determining the chemical structure and molecular arrangement.</p>
Module Learning Outcomes	<p>Understanding Fundamental Principles: Grasping the principles of chemical equilibrium, acid-base equilibria, and solubility products (Quantitative Analysis Skills: Mastering titration techniques (acid-base, redox, complexometric) and Gravimetric methods.</p> <p>Qualitative Analysis Techniques: Identifying unknown compounds, functional groups, and inorganic ions.</p> <p>Instrumental Analysis Mastery: Using modern instruments like Spectrophotometry, Mass Spectrometry, and Chromatography for analysis</p>
Indicative Contents	<p>(Fundamental (Qualitative &amp; Quantitative Analysis). (Concentration units: Molarity, ppm, ppb, w/w%, v/v%).</p> <p>(Data handling, Statistical analysis).</p> <p>(Classical Methods):</p> <p>(Volumetric Analysis / Titration):</p> <p>(Acid-Base Titration).</p> <p>(Precipitation Titration). (Redox Titration).</p> <p>(Complexometric TITRATION (Gravimetric Analysis)). (Chemical Equilibrium): (Equilibrium Constant,</p>



### Learning and Teaching Strategies

Strategies	Lecture
	Desiccation report

### Student Workload (SWL)

Structured SWL (h/sem)	35	Structured SWL (h/w)	
Unstructured SWL (h/sem)	90	Unstructured SWL (h/w)	
Total SWL (h/sem)	125		

### Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	5	10	7,3	
	Assignments	5	10	10,5	
	Projects / Lab.	5	10	12,8,4	
	Tutorial	2	10	8	
Summative assessment	Midterm Exam	1	10	16	
	Final Exam	1	50		
Total assessment			100		



### Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Scope of Analytical Chemistry
Week2	Quantitative Analysis
Week 3	Precipitation Titration
Week 4	Acids and Base
Week 5	Theories of Acids and Bases
Week 6	Acid–Base Titration
Week 7	Midterm Exam
Week 8	Ionic Equilibrium
Week 9	Buffer Solution
Week 10	Introduction to Volumetric Analysis
Week 11	Volumetric Calculations
Week 12	Titration acid base
Week 13	Equivalent weight
Week 14	Molecular weight
Week 15	Molarity and normality
Week 16	Final exam



Material Covered	
Week 1	Titration
Week 2	Acid base titration
Week 3	Titration strong acid and strong base titration
Week 4	Prepare 0.1 n HCL
Week 5	Prepare 0.1 n NAOH
Week 6	Prepare 0.1 n NACL

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Analytical Chemistry 7th Edition of Analytical Chemistry	
Recommended Texts	Fundamentals of Analytical Chemistry	
Websites	<a href="https://tech.chemistrydocs.com/books/analytical//analytical">https://tech.chemistrydocs.com/books/analytical//analytical</a>	

## Grading Scheme



Group	Grade	Marks %	Definition
Success Group (50 - 100)	A - Excellent	90 - 100	Outstanding Performance
	B - Very Good	80 - 89	Above average with some errors
	C - Good	70 - 79	Sound work with notable errors
	D - Satisfactory	60 - 69	Fair but with major shortcomings
	E - Sufficient	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	(45-49)	More work required but credit awarded
	F – Fail	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.



Name of the Instructor:

Jehan Mahmood Najee



..... جمهورية العراق / وزارة التعليم العالي والبحث العلمي

