

Module code	SC-2261		
Module Title	Principles of Analytical Chemistry		
Degree/Diploma	Bachelor of Science (Chemistry)		
Type of Module	Major Core		
Modular Credits	4	Total student Workload	10 hours/week
		Contact hours	4 hours/week
Prerequisite	None		
Anti-requisite	TG-2201 Principles of Analytical Chemistry for Engineers		
Aims			
The module is designed for students to understand the basic principles and learn the experimental techniques of classical titrimetric and gravimetric methods of analysis. The student will also be introduced to common instrumental techniques including chromatography, spectroscopy and electro-analytical methods.			
Learning Outcomes			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order:	40%	-Understand the basic principles and learn the experimental techniques of classical titrimetric methods of analysis, -Understand the theory behind the instrumental techniques of chromatography, spectroscopy and electro-analytical methods	
Middle order:	50%	- solve calculation problems based on the learnt principles in tutorial sessions - carry out a set of experiments in a practical sessions intending to enhance the students' understanding of the principles and operational techniques of the instruments	
Higher order:	10%	- Interpret the results of experimental problem for the writing up of practical reports based on theoretical knowledge - solve real world experimental problem involving instrumental techniques - work independently and play effectively and collaboratively in a team	
Module Contents			
<ul style="list-style-type: none"> - Tools of analytical chemistry: Chemicals, apparatus and operations in analytical chemistry laboratory; Quality control and standardization; Calculations and statistical treatment and analysis of data. - Aqueous solution chemistry: Chemical equilibria: acid-base, metal complex, precipitation and redox equilibria, Classical methods of analysis - Titrimetric methods: Neutralisation, Complexation, Precipitation and Redox titrations - Gravimetric methods: Precipitation, Extraction and Volatilisation gravimetry - Analytical separation processes: Solvent extraction, ion-exchange, multistage separation processes. - Introduction to instrumental methods of analysis:Chromatography; Spectroscopy; Electroanalytical techniques. 			
Assessment	Formative assessment	Tutorial and feedback	
	Summative assessment	Examination: 60% Coursework: 40% - 4 practical reports (20%) - 2 written assignments (10%); - 2 class tests (10%)	