

ZCHE H2102: Analytical/Inorganic Chemistry

Language of Instruction: English Credits: 15 NFQ Level: 6 Module Delivered In 1 programme(s) Teaching & Learning Strategies: This module will be taught in two theory classes of one hour duration for 30 weeks and one practical of three hours duration for thinty weeks. Students will vormality be require to carry out assignments and prepare a week practical report of practical, students will normality be required to carry out assignments and prepare a week practical report of the practical students will normality be required to carry out assignments and prepare a week practical report of the practical students will normality be required to carry out assignments and prepare a week practical report of the practical students will normality be required to carry out assignments and prepare a week practical report of the practical students will normality be required to carry out assignments and prepare a week practical report of the prepare and the previous of the students will normality be required to carry out assignments and prepare a week practical report of the students will be discussed at feasitist. Any course-related issue of questions that may arise will be discussed at feasities. Any course-related students will be discussed at feasitist. Any course-related issue of questions that may arise will be discussed at feasities. The animality of the report of the prevent in the student of provide practical students analysis. Learning Outcomestrate a theoretical knowledge and understanding of analytical chemistry as applied to spectroscopic and titrimetric analysis. Demonstrate a theoretical knowledge of basic inorganic chemistry. LO2 Describe the physical and chemi	Module Title:			Analytical/Inorganic Chemistry			
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Successful completion of year 1 or equivalent							
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ZCHE H2102: Analytical/Inorganic Chemistry

Module Content & Assessment

Indicative Content

Theory

1. Titrimetric methods: Principles of acid-base, complexometric, redox and precipitation titrations; importance of indicator concentration/selection and stoichiometric calculations. 2. Transition metal chemistry: The first series of transition elements. The metals (Sc - Zn): electronic configurations, chemical properties and uses. 3. Spectroscopic methods: The electromagnetic spectrum. Introduction to atomic absorption spectroscopy, flame photometry, FTIR and UV-Vis methods, including sample treatment, concentration range, industrial applications, optimum conditions, interferences. 4. Inorganic Chemistry: Systematic chemistry of the non-transition elements i.e. physical properties, group chemical reactions. 5. Ionic solutions & Electrochemical cells. Nernst equation

Practical

Two "dry" practicals covering relevant calculations and H&S requirements will be followed by an introduction to the Analytical laboratory. Subsequent practicals will develop skills in the use of analytical equipment and techniques from AAS, FP, FTIR, UV-Vis and various titrimetric analysis.Use of ion-selective electrodes, conductimetric titrations. Preparative Inorganic chemistry and qualitative Inorganic chemistry will also be scheduled. The practicals covered will reinforce and amplify the material covered in the lecture course. A major emphasis will be placed on the interfacing of instruments with updated software, e.g., probe for UV-Vis.

Assessment Breakdown	%
Continuous Assessment	10.00%
Practical	40.00%
End of Module Formal Examination	50.00%

Special Regulation

Students must achieve a minimum grade (35%) in both the practical/CA and final examination.

Continuous Assessment					
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date	
Other	3 continuous assessment exams	1,2,3,4	10.00	n/a	

No Project

Practical					
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date	
Practical/Skills Evaluation	Practical Log Book	5,6	40.00	Sem 1 End	

End of Module Formal Examination					
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date	
Formal Exam	No Description	1,2,3,4	50.00	End-of-Semester	

SETU Carlow Campus reserves the right to alter the nature and timings of assessment



ZCHE H2102: Analytical/Inorganic Chemistry

Module Workload

Workload: Full Time		
Workload Type	Frequency	Average Weekly Learner Workload
Lecture	30 Weeks per Stage	2.00
Laboratory	30 Weeks per Stage	3.00
Estimated Learner Hours	30 Weeks per Stage	2.00
	Total Hours	210.00

Module Delivered In					
Programme Code	Programme	Semester	Delivery		
CW_SASES_B	Bachelor of Science (Honours) in Environmental Science	2	Mandatory		