Module code	SC-4366			
Module Title	Food Chemistry and Chemical Analysis of Foods			
Degree/Diploma	Bachelor of Science (Chemistry)			
Type of Module	Major Option			
Modular Credits	2	**Total student Workload**	4	hours/week
		Contact hours	2	hours/week
Prerequisite	None			
Anti-requisite	None			

Aims

Towards the completion of this module, students should be able to understand the chemical composition, reactions, analysis and processing of food and relate them to the processes involved in the food industry.

Learning Outcomes

On successful completion of this module, a student will be expected to be able to:

Lower order:	40%	- Understand the overall chemistry of food components - Understand the theory and application chemical analysis of foods. - characterize the important element of foods using bioanalytical tools and devices
Middle order:	40%	- Identifying what are known and unknown, and where to access new information which may lead to the resolution of the problem. - Application of analytical methods in the analysis of listed food components - Interpretation of analytical data for the determination of food composition.
Higher order:	20%	- Learn independently - Encouraging student-centred pedagogy through the solving of open-ended problem

Module Contents

- *Chemistry of foods*: Carbohydrates, proteins, lipids, vitamins, minerals, water, nutritional needs, food pyramid, digestive processes, stability and bioavailability of nutrients, diet-related diseases
- Nutritional labeling; Food composition tables, Energy from foods; Food additives and their functions.
- *Proximate analysis*: Moisture, Ash, Crude fat, Crude protein, Crude fibre, Nitrogen-free extract.
- *Characterisation of fats and oils*: Sample preparation, refractive index, melting point, smoke, flash and fire points, cold test, cloud point, iodine value, saponification value, free fatty acid value, lipid oxidation tests.
- *Analysis of carbohydrates*: Chemical, physical, enzymatic and instrumental methods.
- *Analysis of minerals and vitamins*: Mineral analysis: titrimetry , colorimetry, ISE, spectroscopy, chromatography and voltammetry. Vitamin analysis: bioassay methods, microbiological assay method, chemical and instrumental methods.

Assessment	Formative assessment	Tutorial and feedback
	Summative assessment	Examination: 60%
		Coursework: 40% - 2 written assignments (20%) - 2 class tests (20%)