

Module code	SC-1221		
Module Title	Fundamentals of Organic 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-1201 Fundamentals of Organic Chemistry for Engineers		
Aims			
The module is designed for students to understand the fundamental principles of organic chemistry			
Learning Outcomes			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	30%	- understand the basic principles of organic chemistry & Spectroscopy	
Middle order :	60%	- Conformational analysis, Isomerism, UV, IR, NMR and Mass spectroscopy	
Higher order:	10%	- demonstrate a solid knowledge of bonding, hybridization, resonance, physical properties, isomerism; predicting the physical properties & mechanisms of organic reactions; concepts, theories & the application of spectroscopy	
Module Contents			
<ul style="list-style-type: none"> - <i>Structure, Bonding & Physical properties:</i> Hund's Rule, Pauli exclusion principle, Aufbau principle, Lewis structures, formal charges, hybridization, resonance and physical properties - <i>Conformational analysis & Isomerism:</i> Potential energy of alkanes versus rotation about C-C single bond. Sawhorse & Newman Projections. Different types of isomers including stereoisomers (geometric and optical isomers of up to two chiral centers). - <i>Overview of Organic reactions:</i> Introduction to the different types of reactions - <i>Spectroscopy (UV-Vis; IR; NMR):</i> Basic instrumentation & its principles, the nature & classification of electronic excitations, quantitative aspects of UV spectroscopy, Solvent & conjugation effects. The nature and range of IR absorptions. Types of vibrational excitations, bond properties & absorption trends. Intensity of IR bands and selection rules. Boltzman distribution, nuclear spin and resonance, chemical shifts and factors affecting them, number and intensity of signals, spin-spin coupling. Functions and use of a mass spectrometer. Molecular ions and isotope abundance, odd-electron and even-electron ion. Fragmentations associated with functional groups. Structural elucidation of organic compounds. 			
Assessment	Formative assessment	Tutorial and feedback	
	Summative assessment	Examination: 60% Coursework: 40% - 3 practical reports (20%) - 2 written assignments (10%) - 2 class tests (10%)	