

Module code	SC-3213		
Module Title	Organometallic 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	SC-1211 Fundamentals of Inorganic Chemistry		
Anti-requisite	None		
Aims			
The module is designed for students to understand the chemistry of organometallic compounds and also understand the fundamentals of group theory and its chemical applications			
Learning Outcomes			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order:	60%	<ul style="list-style-type: none"> - demonstrate a solid knowledge of the different types of ligands, types of organometallic compounds that they form and their reactivity. - distinguish between sigma- and pi-bonded organometallic compounds and their mode of bonding to transition metals. - understand the different types of symmetry operations present. 	
Middle order:	20%	<ul style="list-style-type: none"> - applications of organometallic compounds - analyse the symmetry of molecules and assigning their point groups. - apply group theory to predict the spectroscopic and bonding properties of molecules. 	
Higher order:	20%	<ul style="list-style-type: none"> - utilise the techniques of spectroscopy for molecular structure determination. - apply the theory and concepts of organometallic chemistry and group theory in real applications. 	
Module Contents			
Organometallic Chemistry			
<ul style="list-style-type: none"> - Fundamental concepts in organometallic chemistry such as hapticity, effective atomic number rule, bonding models, d- versus f-block metals. - Sigma-bonding ligands: alkyls/aryls, alkydienes, alkylidynes, carbonyls - Pi-bonding ligands: alkenes, alkynes, arenes, cyclopentadienyls - The properties, reactivity and industrial applications of these major classes of compounds 			
Group Theory			
<ul style="list-style-type: none"> - Symmetry elements and symmetry operations - Determination of the point group of objects and molecules - Application of group theory to the vibrational spectra and bonding properties of molecules 			
Assessment	Formative assessment	Tutorial and feedback	
	Summative assessment	Examination: 60% Coursework: 40% <ul style="list-style-type: none"> - 2 Practical reports (20%) - 2 Class tests (10%) - 2 written assignment (10%) 	