

Module code	SC-4346		
Module Title	Quantum Mechanics and Molecular Spectroscopy		
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			
The aim of this module is to provide students with fundamental concepts of quantum mechanics and the use of quantum mechanical principles in molecular spectroscopy.			
Learning Outcomes			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	50%	<ul style="list-style-type: none"> - understand the fundamental concept of quantum mechanics. - understand the other key problems associated with classical mechanics. - understand the concept of light as a wave and wave-particle duality. 	
Middle order :	30%	<ul style="list-style-type: none"> - describe the implications of Heisenberg's uncertainty principle. - describe deBroglie equation and confinement energy. - describe Schrodinger equation 	
Higher order:	20%	<ul style="list-style-type: none"> - analyse rotational or vibrational spectrum of a diatomic in the gas phase. - analyse a certain topic independently and collaboratively in a team 	
Module Contents			
<ul style="list-style-type: none"> — History and development of quantum mechanics — Wave particle duality and deBroglie — Semi-classical Schrodinger equation and fundamental approach to Schrodinger equation. — Rotational and vibrational spectroscopy 			
Assessment	Formative assessment	Tutorial and feedback	
	Summative assessment	Examination: 60% Coursework: 40% <ul style="list-style-type: none"> - 2 written assignments (20%) - 2 class tests (20%) 	