

<b>Module Code</b>	TG-1301		
<b>Module Title</b>	Engineering Chemistry		
<b>Degree/Diploma</b>	Bachelor of Engineering		
<b>Type of Module</b>	Major Option		
<b>Modular Credits</b>	4	<b>Total student Workload</b>	8 hours/week
		<b>Contact hours</b>	4 hours/week
<b>Prerequisite</b>	None		
<b>Anti-requisite</b>	SC-1211 Fundamentals of Inorganic Chemistry; SC-1241 Fundamentals of Physical Chemistry; TG-1202 Fundamentals of Inorganic Chemistry for Engineers; TG-1203 Fundamentals of Physical Chemistry for Engineers		
<b>Aims</b>			
This module aims to provide students with working knowledge of basic Chemistry. This module contributes to develop competencies in students to perform stoichiometric calculations; to predict molecular structures and molecular geometries; name and predict the structure of inorganic and organic molecules; and to express the time dependence of reactions in the form of a rate equation and reaction mechanism.			
<b>Learning Outcomes</b>			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	30%	- comprehend the basic principles and techniques in chemistry - relate the basic principles to the formation of chemical compounds	
Middle order :	40%	- provide tools which allow students to analyse chemical systems - investigate the effects of bonds between atoms on the resultant properties	
Higher order:	30%	- assess and perform various techniques using laboratory equipment - work cooperatively during laboratory practical sessions - justify the use of certain laboratory techniques over other techniques	
<b>Module Contents</b>			
<ul style="list-style-type: none"> <li>- The numbers of electrons, protons and neutrons in atoms, ions and isotopes</li> <li>- Elemental composition and empirical and molecular formulas of molecules</li> <li>- Balanced equations and calculations for precipitation, acid-base and redox reactions</li> <li>- Properties and theories of ideal and real gases</li> <li>- Properties of atoms and molecules based on electron structure</li> <li>- Chemical and physical properties of simple molecules based on molecular orbitals</li> <li>- Kinetic rate equation in terms of the important variables in chemical reactions</li> </ul>			
<b>Assessment</b>	Formative assessment	Monthly online multiple choice questions will be used to test and to give feedback for their learning	
	Summative assessment	Examination: 60% Coursework: 40% - 2 class tests (10% each) - 10 group laboratory experiments (2% each)	