



UNIVERSITI TEKNOLOGI MARA

CHM082: CHEMISTRY II

Course Name (English)	CHEMISTRY II APPROVED
Course Code	CHM082
MQF Credit	4
Course Description	This is an introductory course to provide students a firm foundation in chemistry. The course covers acids, bases and salts, oxidation and reduction, electrochemistry, rate of reaction, thermochemistry, basic inorganic and organic chemistry. Students will explain concepts, perform investigations via laboratory experiment and discuss the results with peers and facilitators. Lecture sessions employ a mixture of lectures and active learning (self and peer discussions). The outcomes shall be assessed through a variety of tools which include the traditional paper examination, assignment and classroom engagement such as tutorials.
Transferable Skills	Confident
Teaching Methodologies	Lectures, Lab Work, Tutorial, Discussion
CLO	<p>CLO1 Explain the principles and theories in acids, bases and salts, oxidation and reduction, electrochemistry, rates of reactions, thermochemistry, basic inorganic and organic chemistry to solve textbook problems numerically, visually (graph) and verbally.</p> <p>CLO2 Respond to the observation and complete the laboratory datasheet in experiment concerning areas of acid and base, thermochemistry, rates of reactions and basic hydrocarbon reactions.</p> <p>CLO3 Demonstrate leadership quality in both laboratory and classroom.</p>
Pre-Requisite Courses	No course recommendations
Topics	
1. Acids, Bases and Salts 1.1) Concept of Acid and Base 1.2) Properties of Acids and Bases 1.3) Definition of Strong and Weak Acids and Bases and the meaning of Percentage of Ionization or Degree of Dissociation 1.4) Measurement of Acidity and Alkalinity 1.5) Salts	
2. Oxidation and Reduction 2.1) Definition of Redox Reaction based on loss and gain of oxygen, loss and gain of hydrogen, electron transfer, increase and decrease in oxidation number 2.2) Redox Reaction	
3. Electrochemistry II 3.1) Application of Electrolysis in Industry 3.2) Introduction to Electrochemical Cell	
4. Rate of Reaction 4.1) Basic Concept on Rate of Reaction 4.2) Measurement of Rate of Reaction Using Graphs 4.3) Factors influencing the Rate of Reaction (should explain how each factor affects the reaction rate and make comparisons based on graphs of reaction rate) 4.4) Explanation of Rate of Reaction based on Collision Theory and Activation Energy	

5. Thermochemistry

5.1) Meaning of enthalpy, H and enthalpy change, ΔH

5.2) Endothermic and Exothermic Reactions

5.3) Energy Profile Diagram

5.4) Definition of Heat of Reaction (Heat of Neutralization, Heat of Precipitation, Heat of Combustion, and Heat of Displacement)

5.5) Calculation for Heat of Reaction, Heat of Neutralization and Heat of Combustion

6. Metals and Non-metals

6.1) General Comparison between Metals and Non Metals

6.2) Metal: Aluminium

6.3) Non-Metal: Chlorine

7. Organic Chemistry

7.1) Saturated and Unsaturated Hydrocarbons

7.2) Alkenes

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Written assignment (e.g mind mapping, concept mapping, past year questions)	5%	CLO1
	Assignment	Leadership skills (e.g teamwork, attitude)	5%	CLO1 , CLO3
	Practical	Practical skills	10%	CLO2 , CLO3
	Quiz	Quiz 1- (Chapter 1)	2%	CLO1
	Quiz	Quiz 2 - (Chapter 2 and 3)	2%	CLO1
	Quiz	Quiz 3 - (Chapter 4)	2%	CLO1
	Quiz	Quiz 4- (Chapter 5 and 6)	2%	CLO1
	Quiz	Quiz 5 - (Chapter 7)	2%	CLO1
	Test	Test 1 (Chapter 1,2 and 3)	10%	CLO1
	Test	Test 2 (Chapter 4, 5, 6 and 7)	10%	CLO1
	Written Report	Laboratory datasheet (3)	10%	CLO1 , CLO2 , CLO3

Reading List	Reference Book Resources	<ul style="list-style-type: none"> • Chang, R. 2009, <i>Chemistry</i>, 10 Ed., McGraw Hill • Tan Yin Toon, <i>Chemistry for Matriculation Semester I & II</i>, 2 Ed., Oxford Fajar • Silberberg, M.S. 2007, <i>Principles of General Chemistry</i>, 4 Ed., McGraw Hill
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	