

PO LEUNG KUK CENTENARY LI SHIU CHUNG MEMORIAL COLLEGE
TEACHING SCHEDULE
2024/2025
FORM: 5
SUBJECT: CHEMISTRY
TEXTBOOK: NEW CHEMISTRY A MODERN VIEW ARISTO

Cycle no.	Dates	Syllabus to be covered	Values Education & National Security Education	Remarks
1	3/9 – 11/9	-laboratory safety (1) Unit 25 Fossil fuels (5) 25.1 Fossil fuels – a major source of energy source 25.2 %Importance of petroleum 25.3 What is petroleum composed of? 25.4 Fractional distillation of petroleum 25.5 Uses of fractions of petroleum# 25.6 Demand for various fractions of petroleum	%Responsibility	Exercise 1
2	12/9 – 20/9	Test on Unit 22 (1) Unit 25 Fossil fuels (2) 25.7 Combustion of hydrocarbons# 25.8 Carbon dioxide and the greenhouse effect# 25.9 Major air pollutants from cars, factories, incinerators and power stations# 25.10 %Measures for reducing emission of air pollutants# 25.11 #Impact of using fossil fuels on our quality of life and the environment# Unit 27 Alkanes and alkenes (2) 27.1 Risks and benefits of using fossil fuels to the society and environment 27.2 Important reactions of alkanes 27.3 Meeting the demand for the petrol fraction from fractional distillation of petroleum Test on Unit 23 (1)	%Commitment #7 Understand the impact of human activities on the ecological environment and our responsibilities, understand the needs of sustainable development, and recognise the necessity of safeguarding ecological security, resource security, nuclear security and new security domains	
3	23/9 - 30/9	Unit 27 Alkanes and alkenes (6) 26.11 Physical properties of alkanes 27.4 Cracking of petroleum 27.5 Alkenes 27.6 Physical properties of alkenes 27.7 Important reactions of alkenes 27.8 %Wind power – an alternative source of energy	%Responsibility	Exercise 2
4	2/10 – 9/10	Activity 27.3 (2) Test on Unit 24(1) Unit 28 Addition polymers (3) 28.1 Plastic items in modern homes 28.2 Why are plastics so useful? 28.3 What is a polymer?		
5	10/10 - 18/10	Unit 28 Addition polymers (5) 28.4 Polymerization of ethene 28.5 Some common addition polymers 28.6 Uses of some common addition polymers Test on Unit 28 (1)		Exercise 3

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6	21/10 – 1/11	Qualitative Analysis (6) QA.1 Preliminary tests QA.2 Test for cations QA.3 Test for anions QA.4 Test for gases		1 st UT week
7	4/11 – 11/11	Unit 34 Energy changes in chemical reactions (6) 34.1 What is energy? 34.2 Specific heat capacity 34.3 The system and the surroundings 34.4 Internal energy of a system 34.5 Enthalpy change of an exothermic reaction 34.6 Enthalpy change of an endothermic reaction 34.7 Enthalpy changes during physical and chemical changes 34.8 Thermochemical equations 34.9 Explaining energy changes – breakage and formation of chemical bonds 34.10 Standard conditions for measuring enthalpy changes		Exercise 4
8	12/11 - 22/11	Unit 34 Energy changes in chemical reactions (5) 34.11 Standard enthalpy change of reaction 34.12 Standard enthalpy change of formation 34.13 Standard enthalpy change of combustion 34.14 Standard enthalpy change of neutralization 34.15 Determining enthalpy changes of neutralization 34.16 Determining enthalpy changes of combustion Test on Unit 34 (1)		
9	25/11 – 2/12	Unit 35 Hess's Law and its applications (6) 35.1 Hess's Law 35.2 Using Hess's Law to determine enthalpy changes that cannot be easily obtained by experiment 35.3 Determining the enthalpy change of formation of magnesium carbonate from enthalpy changes of other reactions 35.4 Determining the standard enthalpy change of formation of a compound from enthalpy changes of combustion 35.5 Determining the standard enthalpy change of a reaction from standard enthalpy changes of formation		Exercise 5
10	3/12 – 17/12	Unit 38 Gas volume calculations (4) 38.1 The relationship between gas volume and moles: Avogadro's Law 38.2 Molar volume of a gas 38.3 Calculations from chemical equations 38.4 Gas volume – gas volume calculations from chemical equations Test on Unit 35 (1) Test on Unit 38 (1)		

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11	18/12 – 20/12	Unit 36 An introduction to rate of reaction (6) 36.1 Fast and slow reactions 36.2 The rate of a reaction 36.3 Instantaneous rate of reaction 36.4 Methods for following the progress of a reaction 36.5 Following the progress of a reaction by measuring the volume of a gaseous product 36.6 Following the progress of a reaction by measuring the change in mass of the reaction mixture 36.7 Following the progress of a reaction by measuring the pressure of the reaction mixture 36.8 Following the progress of a reaction by measuring the colour intensity of the reaction mixture 36.9 Following the progress of a reaction by measuring the light transmittance of the reaction mixture 36.10 Following the progress of a reaction using titrimetric Analysis		Exercise 6
	6/1 - 18/1	First examination		1st exam
12	20/1 – 22/1	Unit 37 Factors affecting the rate of a reaction (5) 37.1 Factors affecting the rate of a reaction 37.2 Studying the effect of change in concentration of a reactant on the rate of a reaction 37.3 Studying the effect of change in surface area of a solid reactant on the rate of a reaction 37.4 Studying the effect of temperature on the rate of a reaction 37.5 Studying how the presence of a catalyst affects the rate of a reaction 37.6 Reaction rate and effective collisions 37.7 Why does reaction rate increase with the concentration of reactants? 37.8 Why does reaction rate increase with the surface area of reactants? 37.9 Why does reaction rate increase with temperature? 37.10 Applications of catalysts 37.11 Enzymes Test on Unit 36 and 37 (1)		
13	23/1 – 12/2	Unit 39 An introduction to chemical equilibrium (4) 39.1 Irreversible and reversible reactions 39.2 Equilibrium 39.3 Chemical equilibrium for a reversible reaction 39.4 The importance of a closed system 39.5 Equilibrium established from either direction of a reaction 39.6 Effect of changing conditions on chemical equilibrium systems 39.7 Characteristics of a system in dynamic equilibrium pre-SBA experiment (2)		Exercise 7

Cycle no.	Dates	Syllabus to be covered	Values Education & National Security Education	Remarks
14	13/2 – 20/2	Unit 39 An introduction to chemical equilibrium (4) 39.8 The equilibrium constant 39.9 The equilibrium law 39.10 Calculating equilibrium constants 39.11 What does the equilibrium constant tell us? 39.12 Determining the equilibrium constant for an etherification reaction experimentally pre-SBA experiments (2)		
15	25/2 – 4/3	Unit 40 Factors affecting chemical equilibrium systems (2) 40.1 Position of the equilibrium 40.2 Effect of changing conditions on systems in equilibrium 40.3 The effect of concentration changes on chemical equilibrium system 40.4 Predicting the shift in equilibrium position using the reaction quotient, Q pre-SBA experiments (2)		Exercise 8
16	5/3 – 17/3	Unit 40 Factors affecting chemical equilibrium systems (6) 40.5 The effect of pressure changes on chemical equilibrium systems 40.6 The effect of temperature changes on chemical equilibrium systems 40.7 Applying principles of reaction rates and equilibria to industrial processes 40.8 Linking equilibria together		
17	18/3 – 1/4	Unit 29 An introduction of the chemistry of carbon compounds (6) 29.1 Functional groups: centre of reactivity 29.2 Naming alkanes and alkenes (revision) 29.3 The IUPAC rules of naming carbon compounds 29.4 Naming haloalkanes 29.5 Naming alkanols (revision) 29.6 Naming aldehydes and ketones 29.7 Naming carboxylic acids 29.8 Naming esters 29.9 Naming amides 29.10 Naming amines		Exercise 9
18	2/4 – 10/4	Unit 29 An introduction of the chemistry of carbon compounds (6) 29.11 Intermolecular forces and physical properties of carbon compounds 29.12 Physical properties of haloalkanes 29.13 Physical properties of alcohols 29.14 Physical properties of aldehydes and ketones 29.15 Physical properties of carboxylic acids 29.16 Physical properties of esters 29.17 Physical properties of amides 29.18 Physical properties of amines 29.19 Common names of carbon compounds		2nd UT week
19	11/4 – 29/4	Unit 30 Isomerism (6) 30.1 Isomerism 30.2 Structural isomerism 30.3 Cis-trans isomerism 30.4 Chirality		Exercise 10

Cycle no.	Dates	Syllabus to be covered	Values Education & National Security Education	Remarks
20	30/4 – 9/5	Unit 30 Isomerism (5) 30.5 Enantiomers 30.6 Test for chirality – plane of symmetry 30.7 Distinguishing the enantiomers of a chiral compound Test on Unit 30 (1)		
21	12/5 – 19/5	Unit 31 Typical reactions of selected functional groups (6) 31.1 Introduction 31.2 Important reactions of alkanes 31.3 Addition reactions of alkenes 31.4 Substitution reactions of haloalkanes		Exercise 11
22	20/5 – 27/5	Unit 31 Typical reactions of selected functional groups (5) 31.5 Reactions of alcohols 31.6 Reactions of aldehydes and ketones 31.7 Reactions of carboxylic acids 31.8 Hydrolysis of esters 31.9 Hydrolysis of amides Test on Unit 31 (1)		
23	28/5 – 4/6	Unit 32 Synthesis of organic compounds (4) 32.1 Planning a synthesis 32.2 Two-step synthetic routes 32.3 More complicated synthetic routes 32.4 Laboratory preparation of simple carbon compounds 32.5 Common separation and purification methods in carbon compound preparations 32.6 Preparing 1-bromobutane in the laboratory Unit 33 %Important organic substances (2) 33.1 Introduction 33.2 Aspirin 33.3 Detergents	%Responsibility & Law-abidingness	Exercise 12
24	5/6 – 11/6	Revision		

Topic related to National Security Education

% Twelve priority values and attitudes:

Perseverance, Respect for Others, Responsibility, National Identity, Commitment, Integrity, Benevolence, Law-abidingness, Empathy, Diligence, Unity and Filial Piety