YEAR 12 CHEMISTRY - COURSE ORGANISATION AND ASSESSMENT PLAN

Year 12	Unit Titles	Time (hrs)	Key Concepts & Key Ideas	Assessment		
				GOs	Category	Technique, description and conditions
Sem 3	**Forensic Chemistry** Forensic chemistry is a special branch of analytical chemistry concerned with identification and analysis of the substances present in samples. The first step involves identifying the broad class of compound the substance belongs to. Many forensic samples are biological in origin so it is important to survey the major classes of biological compounds such as carbohydrates, proteins and DNA. A range of techniques are used to analyse samples including; electrophoresis, mass spectrometry, atomic emission spectroscopy, gas-liquid chromatography, and high performance liquid chromatography.	**30**	**S1** - .1, .2, .4, .6 **S2** - .2, .9, .10, .11 **R1** - .1, .2, .4 **R2** - .1, .2 **R4** - .2, .3 **R5** - .2	**KCU** **IP** **EC**	**SA**	2 hr Exam, unseen.
Sem 3	**Shipwrecks and Salvage** For safety reasons scuba divers must have a good understanding of the gas laws. The Ocean represents a massive electrolyte and the effects of the saline environment can be investigated and analysed from the perspective of prevention of corrosion and its effects. Ships consist of a variety of different metals and alloys in contact with an electrolyte. Consequently, many different galvanic cells are established which leads to the final corrosion of a wreck. During the restoration electrolysis is used to remove the chloride ions this process is called electrolytic reduction cleaning.	**30**	**S1** - .1, .7 **S2** - .1, .2, .5, .6, .7, .9 **R1** - .1, .4 **R2** - .1, .2 **R3** - .1, .2, .4, .5 **R5** - .1	**KCU** **IP** **EC**	**EEI** **SA**	Design experiment involving gel electrophoresis. 6 weeks, 2 weeks class time, group and individual work, teacher monitored, 2000 -2500 words. 2 hrs, exam conditions, unseen, short items, practical exercises and paragraph responses.
Sem 4	**Chemical Energy - Fuels** Many of our fuels are hydrocarbons while others have a substituent group attached to the hydrocarbon chain. Thermochemistry is the study of energy changes that occur during chemical reactions and changes in state. Calorimeters are used to measure the enthalpy change for combustion reactions. Bond energies and heats of formation provide methods for determining the efficiency of energy transfer.	**30**	**S2** - .3, .4, .7, .11 **R2** - .1, .2 **R3** - .1, .2, .4	**KCU** **IP** **EC**	**EEI**	Construction of a calorimeter and using it to determine the heat of combustion of selected fuels. Evaluation of accuracy of calorimeter. 6 weeks, 2 weeks class time, group and individual work, teacher monitored, 2000 -2500 words.

Year 12	Unit Titles	Time (hrs)	Key Concepts & Key Ideas	Assessment		
				GOs	Category	Technique, description and conditions
Sem 4	**Industrial Chemistry** Chemical industries are established to manufacture products at a profit. In order to compete, companies must improve production rates and yields as well as minimise costs. A few case studies have been selected to illustrate the range of reactions and the role of chemists involved in these processes. Three areas of current research into alternative energy sources include ethanol production, direct methanol fuel cells, and proton exchange membrane fuel cells. The principles of reaction kinetics and equilibrium are the basis of chemical processes involved in the efficient production of ammonia and sulfuric acid. The Solvay process is used to manufacture sodium carbonate which is used by many industries to reduce acidity in various solutions	**20**	**S1** .1, .2 **S2** - .2, .5, .6, .7 **R1** - .1, .2 **R2** - .1, .2 **R3** - .2, .3 **R5** - .1, .3, .4	**KCU** **IP** **EC**	**SA**	2 hrs, exam conditions, unseen, short items, practical exercises and paragraph responses.