SCHEME OF WORK APPLICATION FORM

For each ITEC qualification, the Lecturer/Centre must complete Scheme of Work for each unit indicating how the Lecturer is planning to cover the ITEC syllabus throughout the course.

Set out the planned sessions in terms of *Learning Outcomes* to be achieved. These should match those stated within the ITEC syllabus for each unit. Include all units of each course offered. Hours should meet the minimum guided learning hours listed within the syllabus.

Unit Title: Unit 859 – Chemistry of Hair and Beauty Products

Lecturer(s) responsible:

Total contact tuition hours proposed: 75

Learning Outcomes	Lecture Content	Suggested Resources	Approx Hours
Introductory session	College rules and regulations College mission statement ITEC rules and regulations Health & Safety Timetable Dates – holidays etc. Syllabus Recommended books Uniform	Lecture Q&A Using all the documents listed to ensure the students understand the college expectations and their commitment to the course	
1. Understand the chemistry of active ingredients in hair and beauty products			
Explain the differences between chemical compounds found in hair and beauty products	▪ Matter ▪ Element ▪ Atom ▪ Nucleus ▪ Protons ▪ Neutrons ▪ Electrons ▪ Ions ▪ Anions ▪ Cations ▪ Molecules ▪ Covalent bonding ▪ Compound ▪ Mixture ▪ Solution ▪ Solvent ▪ Solute ▪ Bases	OHP/Whiteboard Lecture Q&A Homework Test	20
Explain the chemical reaction process that occurs in ingredients found in hair and beauty products and their effects on the hair and scalp	▪ Chemical reaction ▪ Catalyst ▪ Covalent bonding ▪ Ionic bonding		
Describe the active ingredients found in different hair and beauty products	▪ Detergents ▪ Surfactants ▪ Emollients ▪ Emulsifiers ▪ Humectants ▪ Fatty Acids ▪ Fatty Alcohols ▪ Fatty Esters ▪ Solvents ▪ Buffering agents ▪ Chelating agents ▪ Masking agents ▪ Gellants/thickening agents ▪ Colouring agents ▪ Hydroxy acids ▪ Preservatives ▪ Fillers ▪ UV absorbers ▪ Occlusives ▪ Polymers ▪ Enzymes ▪ Free radical scavengers ▪ Proteins ▪ Lipids ▪ Vehicles ▪ Active agents ▪ Micro-		

	encapsulation ▪ Liposomes ▪ Nanotechnology ▪ Stabilisers ▪ **Vitamins:** Vitamin A: e.g. ▪ Retin A (tretinoin) ▪ Retinoic acid ▪ Retinol ▪ Retinyl palmitate ▪ Retinoids ▪ Retinaldyhide Vitamin B: e.g. ▪ Niacin ▪ Nicotinamide ▪ Niacinamide Vitamin C: e.g. ▪ Ascorbic Acid ▪ Ascorbyl palmitate Vitamin E: e.g. ▪ Copper peptides ▪ Tocopherols/tocotrinols Anti microbials: e.g. ▪ Arnica extracts ▪ Azelaic acid Anti inflammatories: e.g. ▪ Aloe vera ▪ Azulene ▪ Allantoin Antioxidants: e.g. ▪ Selenium ▪ Green tea ▪ Acai ▪ Alpha lipoic acid ▪ Ubiquinone ▪ Glutathione ▪ Resverarol Cleansers: e.g. ▪ Sodium lauryl sulfate ▪ Cocamidopropyl betaine ▪ Diethanolamine ▪ Isohexadecane Moisturisers: e.g. ▪ Shea butter ▪ Vegetable glycerine ▪ Ceramides ▪ Urea ▪ Coenzyme Q10 ▪ Amino acids ▪ Lactate ▪ Liquid crystals Skin lighteners: e.g. ▪ Hydroquinone ▪ Kojic acid ▪ Licorice ▪ Azelaic acid ▪ Arbutin Serums: e.g. ▪ Phytoestrogens ▪ Flavonoids ▪ Omegas ▪ Peptides ▪ Amino acids ▪ Alcohol ▪ Acetone ▪ Phytosterols ▪ Polyphenols Delivery technology: e.g. ▪ Liposomes ▪ Nanosomes ▪ Fullersomes		
Explain the effect of functional groups on the reactivity of molecules in products	▪ Hydrocarbons ▪ Alkanes ▪ Alkenes ▪ Alkynes ▪ Aromatic ▪ Alcohols ▪ Ethers ▪ Aldehydes ▪ Ketones ▪ Carboxylic Acids ▪ Esters ▪ Amines ▪ Amides ▪ Nitrile ▪ Thiol		
2. Understand the effects and safe use of active ingredients in hair and beauty products			
Explain the desired effects of products in relation to their chemical composition Explain how to follow safe working practices with regard to contraindications presented by the client	▪ Facial skincare products ▪ Make-up products ▪ Body care products ▪ Hair care products ▪ Nail care products • Compliance with current legislation • Client consultation and contraindications • Client disclosure • Scope of practice • Compliance with any relevant Code of Conduct • Referral	OHP/Whiteboard Lecture Q&A Handout Homework Test	20

Explain how to follow safe working practices with regard to the storage, handling and application of hair and beauty products	▪ Use and storage of products • Stock control/rotation ▪ Storage temperatures • Appropriate bottles and closures • Product stability • Out of reach of children • Breakages/spillages • Product data sheets ▪ Shelf life ▪ Appropriate personal protective equipment ▪ Current legislative controls • Adherence to all product safety precautions and manufacturers' instructions		
Identify the organisations responsible for monitoring the safety, standardisation and Lethal Dose (LD 50) testing of hair and beauty products	▪ General compliance of the country therein ▪ Cosmetic product regulations ▪ Local authorities ▪ Governmental legislation ▪ Legal compliance ▪ Trading Standards ▪ Consumer Safety		
Explain the problems associated with the use of oils as active ingredients	▪ Animal, vegetable, mineral or synthetic ▪ Instability ▪ Absorb oxygen ▪ Polymerise ▪ Comedogenic ▪ Water immiscible ▪ Carcinogenic ▪ Combustible ▪ Viscous		
3. Understand the properties of packaging materials in relation to their structure			
Explain the chemical properties of packaging materials in relation to their chemical structure	▪ Packaging types, size, shape and uses ▪ Packaging and dispensing systems i.e. glass, metal, plastic	OHP/Whiteboard Lecture Q&A Homework Test	20
Explain the effects of tensile and compressive forces on metals, glasses, elastomers, thermoplastics, thermosets and ceramics, fibrous materials	▪ Compressive stress ▪ Tensile stress ▪ Ductile failure ▪ Brittle failure ▪ Fatigue ▪ Buckling ▪ Wear ▪ Creep ▪ Fracture ▪ Deformation ▪ Yielding		
Explain the effects of shape and temperature on the properties of packaging materials	▪ Packaging types i.e. glass, plastic ▪ Loose fill ▪ Paper ▪ Corrugated fibreboards ▪ Foam structures ▪ Moulded pulp ▪ Inflated products		
4. Understand the properties and effects of ultra-violet radiation on hair and beauty products and their packaging materials			

Explain the properties and categories of ultra-violet radiation Explain how ultra-violet radiation can affect the chemical composition of hair and beauty products Explain how the exposure and transmission of ultra-violet radiation can affect packaging materials for hair and beauty products	▪ Light spectrum ▪ UVA ▪ UVB ▪ UVC ▪ Efficacy and life expectancy of active ingredients ▪ Oxidation ▪ Polymerisation ▪ Hydrolysis ▪ Degradation of packaging ▪ Shelf life ▪ Life expectancy after opening ▪ Oxidation	OHP/Whiteboard Lecture Q&A Homework Test	15