

Unit Title:	Practical Drug Chemistry
Level:	Three
Credit Value:	12
GLH:	
NOCN Unit Code:	RD1/3/TE/015
QCA Unit Reference	
Grading Descriptors:	1, 3, 7

This unit has 9 learning outcomes.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	The learner can:
1. Understand the structure of atoms and ions.	1.1. Discuss electronic arrangement of atoms and ions using appropriate terminology
2. Understand the concept of the mole.	2.1. Define Ar and Mr 2.2. Calculate molar amounts of various compounds 2.3. Calculate empirical and molecular formulae 2.4. Evaluate the amount needed to prepare a solution of a given molarity
3. Prepare a range of solutions of known concentration and determine an unknown solution concentration.	3.1. Use flame photometry to determine the concentration of K ⁺ and Ca ²⁺ 3.2. Apply the Beer-Lambert law to determine drug concentrations (e.g. vitamin B6) 3.3. Calculate the appropriate dilution of stock solutions 3.4. Calculate dosages of drugs using body mass index 3.5. Understand that drugs can be delivered into the body in different ways 3.6. Determine unknown concentrations for acid-base reactions
4. Associate atomic properties with types of bonds formed.	4.1. Predict when ionic, covalent and metallic bonding will occur 4.2. Compare typical properties of ionic and covalent compounds 4.3. Use the concept of electronegativity to explain the intermolecular forces dipole-dipole bonding, hydrogen bonding and Van der Waals' bonding 4.4. Compare oxidation and reduction in terms of electron transfer

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LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	The learner can:
5. Explain why a number of factors influence the rate of a chemical reaction.	5.1. Evaluate if changing a factor will change the collision frequency of reacting particles 5.2. Analyse how changing the temperature affects the distribution of molecular energies 5.3. Understand the role of a catalyst
6. Understand that reactions may release energy or only work if they can absorb energy.	6.1. Explain exothermic and endothermic change 6.2. Use the calorimetry equation to calculate the size of the energy change
7. Understand the concept of dynamic equilibrium.	7.1. Explain equilibrium in terms of reaction rates 7.2. Apply Le Chatalier's principle to predict the effect of concentration or temperature change 7.3. Write an expression for K_a for a weak acid
8. Apply the concept of pH.	8.1. Define and calculate pH for strong and weak acids 8.2. Calculate pH for strong and weak alkalis 8.3. Explain the action of buffers
9. Perform inorganic and organic synthesis	9.1. Use a range of practical techniques in preparative chemistry a) Distillation b) Fractional distillation c) Vacuum filtration d) Solvent extraction e) Recrystallisation 9.2. Calculate % yield

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ASSESSMENT INFORMATION

Guidance:

This grid gives details of the assessment activities to be used with the unit attached. Please refer to the NOCN Handbook for definitions of each activity and the expectations for assessment practice and evidence for moderation.

The assessment activities for this unit are indicated in the table below:

Key: P = Prescribed – this assessment method *must* be used to assess the unit.
O = Optional – this assessment method *could* be used to assess the unit.

Case study		Project	
Written question & answer/test/exam		Role play/simulation	
Essay		Practical demonstration	
Report		Group discussion	
Oral question and answer		Performance/exhibition	
Written description		Production of artefact	
Reflective log / diary		Practice file	

Signposting Key Skills

This unit offers clear opportunities for learners to provide evidence of achievement in Key Skills achievement in the following skill area/s:

Key Skill		Wider Key Skill	
Communication		Working with others	
Information Technology		Problem solving	
Application of Number		Improving Own Learning and Performance	

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Accredited End date:
Unit Sector/Subject area:
Grading descriptors:
Availability for Use:

Purpose and Aim of the Unit	Free Text
Restrictions on the Availability	Free Text or N/A
Additional Assessment Requirements	Free Text or N/A
Details of relationship between the Unit and the NOS	Free Text or N/A
Details of relationship between the Unit and Standards (not NOS)	Free Text or N/A
Endorsement of the Unit by	Free Text or N/A