

Access to Higher Education Unit

This unit forms part of an Access to HE Diploma. If delivering the graded version of this unit, please refer to the Provider Handbook for details on grading descriptors and the application of these across units within your programme.

Unit Title: Physical Quantities and Algebraic Methods

Graded Unit Reference Number: GA33PHY18

Ungraded Unit Reference Number: UA33PHY18

Module: Maths; Physics

Level: Three (3)

Credit Value: Three (3)

Minimum Guided Learning Hours: 30

Learning Outcome (The Learner will):	Assessment Criterion (The Learner can):
1. Understand the SI system of units for physical quantities	1.1 Identify the SI base units for mass, length, time, temperature, electric current, luminosity and amount of substance
	1.2 Explain how the definition of some SI base units has evolved, e.g. units for mass, length and temperature
	1.3 From first principles (using appropriate formulae) derive the units for velocity, acceleration, force (the newton), energy (the joule)
	1.4 Represent units in standard form, e.g. ms^{-1}
2. Understand how to manipulate formulae to change the subject	2.1 Manipulate formulae to change the subject and perform calculations, e.g. rearrange $v = u + at$ to find a or t ; rearrange $s = ut + \frac{1}{2}at^2$ to find a or u
	2.2 Check the results of formula manipulation by substituting units, i.e. show that the units of the result of a rearranged formula are appropriate
3. Know how to represent and collect the terms of units algebraically	3.1 Perform calculations including units in standard form to derive the units of the result, e.g. where $v = u + at$, $v = 2 \text{ ms}^{-1} + 3 \text{ ms}^{-2} \times 2 \text{ s} = 2 \text{ ms}^{-1} + 6 \text{ ms}^{-1} = 8 \text{ ms}^{-1}$

3.2 Perform calculations and collect the terms of units to derive the units for solutions and check the results

3.3 Prove equalities by deriving units, e.g. prove the equality of potential energy and kinetic energy from their standard formulae