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: Core Algebra, Trigonometry and Calculus

Graded Unit Reference Number: GA36MTH25

Ungraded Unit Reference Number: UA36MTH25

Module: Mathematics

Level: Three (3)

Credit Value: Six (6)

Minimum Guided Learning Hours: 60

Learning Outcome (The Learner will):	Assessment Criterion (The Learner can):
1. Understand algebraic methods	1.1 Solve problems involving quadratic functions, their graphs, and the discriminant
	1.2 Apply logarithm laws to solve problems
	1.3 Use algebraic long division to solve problems
	1.4 Apply the binomial expansion to solve problems
	1.5 Decompose a rational function into partial fractions
2. Understand the factor theorem	2.1 Show that (x + a) is a factor of a polynomial
	2.2 Find the roots of a cubic polynomial by factorising
3. Understand sequences and series	3.1 Solve problems involving arithmetic sequences/series
	3.2 Solve problems involving geometric sequences/series

4.	Understand trigonometry	4.1 Solve a simple trigonometric equation, in the interval $0 \leq \theta \leq 360°$ or $0 \leq \theta \leq 2\pi$, using the quadrant method
		4.2 Apply simple trigonometric identities to solve problems, including $\sin\theta/\cos\theta \equiv \tan\theta$ and $\sin^2\theta + \cos^2\theta \equiv 1$
5.	Understand basic calculus	5.1 Apply first principles to find the gradient function of a polynomial
		5.2 Differentiate functions of the form $f(x) = ax^n$, where $n \in \mathbb{R}$ and a is a constant
		5.3 Use calculus to find equations of tangents/normals to a curve
		5.4 Find the antiderivative of functions of the form $f'(x) = ax^n$, where $n \in \mathbb{R}$ and a is a constant
		5.5 Use appropriate integration notation
		5.6 Find the constant of integration, by substitution of a point (x, y), through which a curve passes