Advanced Higher Mathematics (National 7)
Scheme of Work

Block	Unit	Outcome	Topic	Sub-Topics	Assessment
2	Applications	1.1	Binomial Theorem	Binomial Theorem Expanding Expressions Finding Coefficients in Expansions	
1	Methods	1.1	Partial Fractions	Partial Fractions	
		1.2	Differentiation	Product Rule Quotient Rule Inverse Trig Functions Implicit Differentiation Parametric Differentiation Logarithmic Differentiation	Methods Part 1
2	Applications	1.2	Sequences and Series	Arithmetic Sequences Geometric Sequences Maclaurin Series Expansions	
		1.1	Complex Numbers I (& Binomial Theorem)	Arithmetic of Complex Numbers Modulus, Argument and Conjugate Finding Roots of a Quartic Function Solving Complex Equation	Applications Part 1
3	GPS	1.3	Complex Numbers II	Cartesian and Polar Forms De Moivre's Theorem nth Roots of Unity Argand Diagrams and Geometric Representations of (In)Equations	
		1.1	Systems of Equations	Gaussian Elimination Inconsistency, Redundancy and Ill-Conditioning Arithmetic of Matrix Operations Transpose, Determinant and Inverse Geometric Transformations	
		1.2	Vectors	Vector Product Equations of Lines in 3 Dimensions Equations of Planes	GPS Part 1
4	Methods	1.3	Integration	New Standard Integrals Integration by Substitution Integrating Rational Functions using PFs Integration By Parts Areas between curve and the y-axis	
		1.4	Differential Equations	First Order O.D.E's - variables separable Integrating Factor Second Order O.D.E's	Methods Part 2
5	Applications	1.4	Graphs of Functions	Asymptotes Graph Sketching of Rational Functions Extrema of Functions Inverse of Functions	
		1.5	Applications of Calculus	Rectilinear Motion Optimisation Volumes of Solids of Revolution	
		1.3	Mathematical Proof I	Applying Summation Formulae Proof by Induction	Applications Part 2
6	GPS	1.5	Mathematical Proof II	Disproving conjecture by counter-example Negation of Statements Proof by Contradiction Proof by Contrapositive	
		1.4	Number Theory	Euclid's Algorithm Solving Diophantine Equations Other Bases Fundamental Theorem of Arithmetic	GPS Part 2