

Key Stage 5 – YEAR 12 A level Maths – 2022-2023  
Curriculum Map for Students

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic Overview	Surds, Indices, Algebra, Trigonometry	Co-ordinate Geometry and Binomial Expansion + Vectors	Algebraic Methods Exponentials and Logs. Differentiation	Natural logs and “e” Applications of Differentiation. Integration Applied Topic Mechanics Modelling	Mechanics -Constant Acceleration. Forces and Motion. Statistics -Data collection and Sampling Measures of Location Spread. Data Representation	Mechanics- Forces and Motion Continued. Variable Acceleration. Statistics. Probability, Probability Distributions. Hypothesis Testing
Focus	Rules for manipulating and evaluating Indices and Surds. Applications of Quadratics. Solving quadratic equations, Completing the square. Use of the discriminant. Modelling using quadratic functions. Solving Simultaneous Equations (linear and quadratic). Linear and quadratic inequalities and regions. Graphs of quadratic, cubic, quartic and reciprocal functions and their points of intersection. Trigonometry. Using Sine Rule, Cosine Rule etc to solve Triangles. Trig Graphs Trig Identities and Equations	Transformations of Graphs Co-ordinate geometry, Straight Line Graphs. Gradients, $y=mx+c$ Equation of a circle, Tangents. Points of intersection. Binomial Expansion for integer powers of $n$ . Pascals triangle, factorial notation. Solving numerical problems using binomial expansion. Vectors in 2 dimensions. Notation, Magnitude and direction. Position vectors, Relative position and velocity vectors.	Problem solving with Vectors Algebraic fractions, Factor Theorem, Polynomial division, (+ or Grid method) Mathematical proof. Differentiation from 1 <sup>st</sup> principles. Rules for differentiating individual algebraic terms. Gradients Tangents and normal Exponential functions, logarithms. Log laws.	Solving equations using logs and exponentials. Use of natural logs and “e” Using Logs to find constants in non-linear relationships using $y = mx + c$ Stationary points, Use of 2 <sup>nd</sup> derivative. Max min points. Modelling and problem solving. Integrating single algebraic term. Indefinite integrals Definite Integrals. Area under a curve. Using addition and subtraction to find Areas between curves or curves and lines. Areas under the $x$ axis. Modelling +Assumptions. Quantities, Units Vectors	Displacement, velocity Time graphs. Constant Acceleration Formulas. Vertical motion under gravity. Force Diagrams $F=ma$ . Forces as vectors. Motion in 2 dimensions. Populations, Sampling Methods. Types of Data. Large Data Set Measures of Location and Spread. Interpolation. Coding. Cumulative Frequency. Box Plots including outliers. Histograms. Comparing Data Correlation and Linear Regression.	Connected Particles and Pulleys Variable Acceleration. Use of Differentiation and Integration. Independent Events, Probability Laws. Use of Venn and Tree Diagrams to solve Problems. Probability Functions. Binomial Model. Cumulative Binomial Probabilities. Hypothesis Testing. Null and Alternative Hypothesis. Critical values and regions. <b>Pure Book 2</b> Proof by Contradiction Partial Fractions Arithmetic +Geometric sequences. Nth term. Sum of “ $n$ ” terms. Sum to infinity of a GP. Sigma Notation. Recurrence Relations
Assessment		Assessment 1 Ch1-4,9,10 Ch4 (4.1-4.4) only	Assessment 2 Ch4 (4.5,4.64.7) Ch5, Ch6, Ch8 Ch11 (11.1-11.4)	Assessment 3 Ch 12,13,14	Assessment 4 Applied Ch 1-4 and Ch 9, ch10 (sec10.1-10.4)	Year 12 Final Assessment (Pure and Applied A/IS papers)