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

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic Overview	**Surds** **Indices** **Algebra** **Algebraic methods**	**Binomial expansion** **Trigonometry** **Co-ordinate Geometry**	**Vectors** **Exponentials and Logs.** **Natural logs and "e"** **Differentiation** **Applications of Differentiation.**	**Integration** **Applied Topic Mechanics** **Modelling Mechanics - Constant Acceleration.** **Forces and Motion.** **Statistics -Data collection and Sampling**	**Mechanics- Forces and Motion Continued.** **Variable Acceleration.** **Statistics- Measures of Location Spread.** **Data Representation** **Probability, Probability**	**Statistics.** **Distributions.** **Hypothesis Testing** **Pure Book 2** **Algebraic Methods** **Sequences and series** **Binomial Expansion**
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. Algebraic fractions, Factor Theorem, Polynomial division, Mathematical proof.	Binomial Expansion for integer powers of n. Pascals triangle, factorial notation. Solving numerical problems using binomial expansion. 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.	Vectors in 2 dimensions. Notation, Magnitude and direction. Position vectors, Relative position and velocity vectors. Problem solving with Vectors Differentiation from 1st principles. Rules for differentiating individual algebraic terms. Gradients Tangents and normal Stationary points, Use of 2nd derivative. Max min points. Modelling and problem solving. 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 $y = mx + c$	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	Connected Particles and Pulleys Variable Acceleration. Use of Differentiation and Integration. Measures of Location and Spread. Interpolation. Coding. Cumulative Frequency. Box Plots including outliers. Histograms. Comparing Data Correlation and Linear Regression. 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. **Pure Book 2** Proof by Contradiction Partial Fractions Arithmetic +Geometric sequences. Nth term. Sum of "n" terms. Sum to infinity of a GP. Sigma Notation. Recurrence Relations. Expanding with negative and fractional powers Using Partial fractions
Assessment		*Assessment 1* *Ch1-4, 7*	*Assessment 2* *Ch5, 6, 8, 9, 10* *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/S papers)*