**Edexcel Further Maths A Level - Overview 2022-23**

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| **Year Group** | **Autumn Term** | **Spring Term** | **Summer Term** |
|  | **Term 1** | **Term 2** | **Term 3** | **Term 4** | **Term 5** | **Term 6** |
| **Year 12***The first year of the course will cover a deeper knowledge of Maths, with objects like complex numbers and matrices seen for the very first time.**There are 2 modules that are taken in addition to Core Pure – Decision, which focuses on algorithms and how to model real-life situations like distances between towns using graphs.* | **Core Pure*** Proof

Proofs using induction, sums of series, divisibility, powers of matrices* Complex numbers

Complex number arithmetic, conjugates, polynomial equations with complex roots, modulus argument form, Argand diagrams, loci**Decision 1*** Algorithms and graph theory

Flow diagrams, bin packing, bubble sort, quick sort, Eulerian and semi-Eulerian graphs, planar, isomorphic and complete graphs* Algorithms on graphs

Prim’s, Kruskal’s, Dijkstra’s, route inspection | **Core Pure*** Further algebra and functions

Series for sums of integers, understand the relationship between roots and the coefficients in polynomial equations* Matrices

Matrix arithmetic, matrix transformations in 2D**Decision 1*** Critical path analysis

Activity networks, precedence tables, critical path analysis, Gantt charts* Linear programming

Graphical solution of 2 variable problems | **Core Pure*** Matrices

Matrix transformations in 3D, determinants of 2x2 and 3x3 matrices, inverse 2x2 and 3x3 matrices, solve simultaneous equations using matrices, invariant points and lines* Further vectors

3D line equations, skew, parallel and intersecting lines, plane equations, scalar product, angle between lines and planes, intersection of a line and a plane**Further Pure 1*** Further trigonometry

t-formulae* Numerical methods

Numerical solutions to 1st and 2nd order differential equations* Inequalities

Solving algebraic inequalities | **Core Pure*** Further calculus

Volume of revolution* Further vectors

Distances between lines, a point and a line, a point and a plane**Further Pure 1*** Further vectors

Vector product, area of a triangle and a parallelogram, volume of a tetrahedron and a parallelepiped* Coordinate systems

Parabola, rectangular hyperbola, foci and directrices | Revision | Start of Year 13 content |