**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 |