

KS5 Curriculum Overview 2023/24

Department: Further Mathematics

Description of KS5 Curriculum:

The aims and objectives of this curriculum are to enable students to:

- Understand mathematics and mathematical processes in a way that promotes confidence, fosters enjoyment and provides a strong foundation for progress to further study
- Extend their range of mathematical skills and techniques
- Understand coherence and progression in mathematics and how different areas of mathematics are connected
- Apply mathematics in other fields of study and be aware of the relevance of mathematics to the world of work and to situations in society in general
- Use their mathematical knowledge to make logical and reasoned decisions in solving problems both within pure mathematics and in a variety of contexts, and communicate the mathematical rationale for these decisions clearly
- Reason logically and recognise incorrect reasoning
- Generalise mathematically
- Construct mathematical proofs.

KS5	Term 1 Content	Term 2 Content	Term 3 Content
Year 12	Decision: <ul style="list-style-type: none"> • Algorithms • Graphs and Networks • Algorithms on Graphs • Route Inspection • Linear Programming Pure: <ul style="list-style-type: none"> • Complex Numbers • Matrices 	Decision: <ul style="list-style-type: none"> • Critical Path Analysis Pure: <ul style="list-style-type: none"> • Roots of Polynomials • Series • Proof • Argand Diagrams • Matrix Transformations • Vectors • Volumes of Revolution 	Mechanics: <ul style="list-style-type: none"> • Momentum and Impulse • Work, Energy and Power Decision: <ul style="list-style-type: none"> • Travelling Salesman • Simplex Algorithm Pure: <ul style="list-style-type: none"> • De Moivre's Theorem

<p>Year 13</p>	<p>Decision:</p> <ul style="list-style-type: none"> ● Simplex – Two Stage and Big M ● Critical Path Analysis <p>Pure:</p> <ul style="list-style-type: none"> ● Maclaurin series <p>Mechanics:</p> <ul style="list-style-type: none"> ● Elastics – Hooke's Law ● Elastic Energy ● Oblique Collisions 	<p>Pure:</p> <ul style="list-style-type: none"> ● Series - Method of differences ● Methods of Calculus ● Polar Coordinates ● Volumes of Revolution ● Parametric Volumes of Revolution ● Hyperbolic Functions ● Complex Sums of Series 	<p>Pure</p> <ul style="list-style-type: none"> ● Differential equation Methods ● Modelling with Differential Equations
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