THE JCB ACADEMY
Sixth Form

Further Mathematics

A Level

Examination Board: EDEXCEL

Aims of course:

To encourage candidates to:

- Understand mathematics and mathematical processes and to promote confidence, enjoyment and provide a strong foundation for further study;
- Understand coherence and progression and how different areas of mathematics are connected
- Apply mathematics in other fields of study;
- Represent situations mathematically and understand the relationship between problems in context and mathematical models.

Programme of study

Module Name	Module Description
Further Pure	Proof, Complex numbers, Matrices, Further algebra and functions, Further calculus, Further vectors, Polar coordinates, Hyperbolic functions, Differential equations
Further Statistics	Discrete probability distributions, Poisson and Binomial distributions, Geometric and negative binomial distributions, Hypothesis testing, Central Limit Theorem, Chi squared tests, Probability generating functions, Quality of tests
Further Mechanics	Momentum and Impulse, Work, energy & power, Elastic strings and springs & elastic energy, Elastic collisions in one dimension, Elastic collisions in two dimensions

Approaches to learning:

In Further Mathematics the students study the full A Level course over two years. They will complete the modules required for A Level Mathematics as well as those for Further Mathematics. There are three assessment and learning objectives:

- Use and apply standard techniques;
- Reason, interpret and communicate mathematically;
- Solve problems within mathematics and in other contexts.

There are three over-arching themes:

- comprehend and critique mathematical arguments, proofs and justifications of methods and formulae, including those relating to applications of mathematics.
- understand, interpret and extract information from diagrams and construct mathematical diagrams to solve problems, including in mechanics;
- understand and use modelling assumptions.

Who is this course aimed at?

Students who wish to pursue a further study in Mathematics, Engineering, Business or related work. Mathematics is a course worth studying in its own right. It is challenging but interesting. It builds on what you have learnt at GCE, but also involves new ideas that some of the greatest minds in history have produced. It serves as a very useful support for many other qualifications as well as being a much sought-after qualification for the workplace and courses in higher education.

Minimum entry requirement:

Grade 7 in Mathematics, Grade 6 in English Language + 3 GCSEs grades 9 – 4

All subjects will be terminally examined at the end of two years, with internal exams throughout year 1 and 2.

Please note: The course is dependent on numbers registering their interest to study at A Level. The subject will only run if there are sufficient student numbers.