

# Further Mathematics

## A LEVEL - EDEXCEL

### *What are the aims of the course?*

Students will be encouraged to:

- Develop their understanding of mathematics and mathematical processes in a way that promotes confidence and fosters enjoyment
- Develop the ability to reason logically and recognise incorrect reasoning, to generalise and to construct mathematical proofs
- Extend their range of mathematical skills and techniques and use them in more difficult, unstructured problems
- Use mathematics as an effective means of communication
- Read and comprehend mathematical arguments and articles concerning applications of mathematics
- Acquire the skills needed to use technology, such as calculators and computers, effectively, recognise when such use may be inappropriate and be aware of limitations
- Develop an awareness of the relevance of mathematics to other fields of study, to the world of work and to society in general
- Take increasing responsibility for their own learning and the evaluation of their own mathematical development

### *What does it involve?*

This course involves the study of algebraic techniques to a high level, as well as finding solutions to a variety of equations. Higher level trigonometry is considered as is the investigation of a whole 'new' branch of mathematics. Students will learn to solve First and Second Order Linear Differential Equations, consider 'Maclaurin' and 'Taylor' series expansions and explore the topic of Polar Coordinates. All in all, this course serves as an excellent basis for the serious mathematician who is considering a Mathematical or Engineering based course at university.

## *How is it assessed?*

### **Year 12**

Students cover the full A Level in Mathematics during this year. However, all three examinations for this course will be sat at the end of Year 13.

### **Year 13**

A further three examinations are sat, making a total of six papers in total for this course. All six papers will last 2 hours.

## *Are there any specific entry requirements?*

Students who wish to take Further Mathematics in the Sixth Form should have taken the Higher Tier at IGCSE/GCSE and gained at least a grade A (level 7). However, an A\* (level 8/9) is preferable.

## *Why is it a useful qualification?*

Mathematics can be enjoyable and worth studying in its own right, as well as being a supporting subject for the physical and social sciences.

There is evidence to suggest that students who apply to university to study subjects such as Economics, are given more favourable offers if they are studying A Level Mathematics.

Research carried out at the LSE has found that there is a high wage premium (up to +11%) associated with having studied Mathematics at A Level.

Mathematics imparts those skills which directly increase productivity in the work place such as the ability to think logically and to solve complex problems. Success in Mathematics also shows that the student possesses essential qualities such as determination and perseverance.

