



## FURTHER MATHEMATICS

### Course Information

Any student wishing to take Further Mathematics would also have to take Mathematics as another option. Students thinking about studying a degree at university with a significant mathematical content are advised to consider this course. As well as developing an even greater range of skills across Pure Mathematics, Mechanics and Statistics, it also allows students to gain a greater depth of understanding and versatility with the content of the main Mathematics A level.

The Further Mathematics A Level, which started being taught in September 2017 reflects the style of the new GCSE course giving more emphasis to understanding, mathematical modelling and problem solving skills. The course covers three main areas; Pure Mathematics, Mechanics and Statistics, and all three areas are included in the final examinations. Pure Mathematics is the foundation of methods and concepts, Mechanics is the study of forces and movement and Statistics covers probability and data handling.

More specifically, Pure Mathematics will cover proof, complex numbers, matrices, functions, calculus, vectors, polar coordinates, hyperbolic functions, differential equations, trigonometry, numerical methods and coordinate geometry.

Mechanics will cover dimensional analysis, momentum and collisions, work, energy and power, circular motion and centres of mass and moments.

Statistics will cover discrete random variables and expectation, the Poisson distribution, type I and II errors, continuous random variables, chi squared testing, exponential distributions and inference.

Students will be taking the Edexcel specification 9FM0.

The examinations consist of four, 1 ½ hour long papers, each worth 75 marks and each contributing 25% of the final A level grade. The questions on all papers are a mix of question styles from short single mark questions to multi-step problems.

Paper 1 will cover skills from the Pure Mathematics content.

Paper 2 will cover skills from the Pure Mathematics content.

Paper 3 will cover the skills from the Mechanics content.

Paper 4 will cover the skills from the Statistics content.

All examinations are taken at the end of Year 13.

### Entry Requirements

In order for a student to gain success in this course, they would need to be a confident mathematician, usually having gained at least an 8 in their GCSE Mathematics. With this in mind, the entry requirement is 8, or a very high 7 from a predicted 8.

### Career Pathway

Mathematics underpins the study of any science, technology, engineering or mathematics subject within higher education.

Degree courses in Automotive Engineering, Chemical Engineering, Economics, Marine Engineering, Mathematics, Mechanical Engineering and Physics.

Should you like to receive any additional information on this course please contact Mrs J Wells – Head of Department