

## **MATHEMATICS**

### **AWARD RECEIVED - ADVANCED HIGHER MATHEMATICS**

#### **ENTRY LEVEL**

*This is at the discretion of the school, but you would normally be expected to have attained Higher Mathematic, preferably Grade A or B.*

#### **COURSE CONTENT**

The course is made up of three compulsory units.

##### *Compulsory Units*

These units build on the mathematical knowledge and skills you have gained at Higher level.

##### ***Mathematics 1: Methods in Algebra and Calculus***

Content of the unit includes

- applying algebraic skills to partial fractions
- applying calculus skills through techniques of differentiation
- applying calculus skills through techniques of integration
- applying calculus skills to solving differential equations

##### ***Mathematics 2: Applications of Algebra and Calculus***

Content of the unit includes

- applying algebraic skills to the binomial theorem and to complex numbers
- applying algebraic skills to sequences and series
- applying algebraic skills to summation and mathematical proof
- applying algebraic and calculus skills to problems

##### ***Mathematics 3: Geometry, Proof and Systems of Equations***

Content of the unit include

- applying algebraic skills to matrices and systems of equations
- applying algebraic and geometric skills to vectors
- applying geometric skills to complex numbers
- applying algebraic skills to number theory
- applying algebraic and geometric skills to methods of proof

## **ASSESSMENT**

This course is assessed by a combination of internal assessment by the teacher and an external examination, set and marked by the SQA.

There is an assessment for each of Unit 1, Unit 2 and Unit 3

These are done in normal class time.

All three units need to be passed in order to gain the full award.

One resit is allowed for each Unit, where necessary.

Any resits will take place at lunchtime.

The prelim is 2 hours duration.

The external examination is a single, calculator-allowed paper of 100 marks.

This exam lasts for 3 hours.

## **HOMEWORK**

Homework from the course text books is set on a regular basis to consolidate the work covered in class.

One extended homework exercise is set at end of each topic.

## **PROGRESSION**

HNC/HND/Degree or Employment

The mathematics department also offer Advanced Higher Mathematics of Mechanics.

To study this course, you must also choose to study Advanced Higher Mathematics and Advanced Higher Physics.