

MATHEMATICS: CfE ADVANCED HIGHER

Why Mathematics?

This course enables you to build on your previous mathematical experience in the areas of algebra, geometry and trigonometry and introduces you to elementary calculus. The study of Mathematics provides you with many valuable skills. It is often very important when seeking employment or entry to further or higher education and is an important part of your general education.

COURSE OUTLINE

Mathematics 1- Methods in Algebra and Calculus

The general aim of the Unit is to develop advanced knowledge and skills in algebra and calculus that can be used in practical and abstract situations to manage information in mathematical form. The Outcomes cover partial fractions, standard procedures for both differential calculus and integral calculus, as well as methods for solving both first order and second order differential equations. The importance of logical thinking and proof is emphasised throughout.

Mathematics 2 – Applications of Algebra and calculus

The general aim of the Unit is to develop advanced knowledge and skills that involve the application of algebra and calculus to real life and mathematical situations, including applications to geometry. Learners will acquire skills in interpreting and analysing problem situations where these skills can be used. The Outcomes cover the binomial theorem, the algebra of complex numbers, properties of functions, and rates of change. Aspects of sequences and series are introduced, including summations, proved by induction.

Mathematics 3 – Geometry, Proof and Systems of Equations

The general aim of the Unit is to develop advanced knowledge and skills that involve geometry, number and algebra, and to examine the close relationship between them. Learners will develop skills in logical thinking. The Outcomes cover matrices, vectors, solving systems of equations, the geometry of complex numbers, as well as processes of rigorous proof.

ASSESSMENT

To gain the Course award the learner must pass the SQA Course assessment. The Course assessment will provide the basis for grading attainment in the Course award (100% of the marks available for grading are from the SQA examination).

SQA Examination

Component 1 – non calculator paper

The question paper will consist of a series of short and extended response questions (some of which may be set in contexts) that require the application of skills developed in the Course. Learners will be expected to communicate responses clearly and to justify solutions. No calculators will be allowed. The paper will have 35 marks and be of 1-hour duration.

Component 2 – calculator paper

The question paper will consist of a series of short and extended response questions (some of which may be set in contexts) that require the application of skills developed in the Course. Learners will be expected to communicate responses clearly and to justify solutions. Calculators will be allowed. The paper will have 80 marks and be of 2.5 hours duration.

ENTRY TO THE COURSE

This is at the discretion of the school/college, but you would normally be expected to have attained at least a B at Higher Mathematics.

PROGRESSION

Successful completion of this course may lead to:

Education (HNC/HND/Degree); Employment in

- Science & Mathematics
- Computing & ICT
- Business
- Construction
- Engineering
- Finance
- Health & Medicine
- Manufacturing Industries
- Transport & Distribution

Further advice and information on these options is available from your Subject Teacher, Home Area Principal Teacher and Careers Adviser.