TENBY SCHOOLS SETIA ECO PARK | iSP International Schools Partnership

Further Mathematics

Cambridge International Examinations Syllabus Code 9231

IGCSEs needed

IGCSE Additional Mathematics
IGCSE Physics

It is expected that learners will have studied the majority of the Cambridge International AS & A Level Mathematics (9709) subject content before studying Cambridge International AS & A Level Further Mathematics (9231).

Component in AS & A Level Further Mathematics (9231)	Prior knowledge required from AS & A Level Mathematics (9709)
9231 Paper 1: Further Pure Mathematics 1	• 9709 Papers 1 and 3
9231 Paper 2: Further Pure Mathematics 2	• 9709 Papers 1 and 3
9231 Paper 3: Further Mechanics	• 9709 Papers 1, 3 and 4
9231 Paper 4: Further Probability & Statistics	• 9709 Papers 1, 3, 5 and 6

Course Overview

Cambridge International AS & A Level Further Mathematics develops a set of transferable skills. These include the skill of working with mathematical information, as well as the ability to think logically and independently, consider accuracy, model situations mathematically, analyse results and reflect on findings. Learners can apply these skills across a wide range of subjects and the skills equip them well for progression to higher education or directly into employment. Learners will find that the additional time spent studying this subject will support their understanding of A Level Mathematics.

Syllabus Units/Topics

Content section	Assessment component	Topics included
1 Further Pure Mathematics 1	Paper 1	1.1 Roots of polynomial equations 1.2 Rational functions and graphs 1.3 Summation of series 1.4 Matrices 1.5 Polar coordinates 1.6 Vectors 1.7 Proof by induction
2 Further Pure Mathematics 2	Paper 2	2.1 Hyperbolic functions 2.2 Matrices 2.3 Differentiation 2.4 Integration 2.5 Complex numbers 2.6 Differential equations
3 Further Mechanics	Paper 3	3.1 Motion of a projectile 3.2 Equilibrium of a rigid body 3.3 Circular motion 3.4 Hooke's law 3.5 Linear motion under a variable force 3.6 Momentum
4 Further Probability & Statistics	Paper 4	4.1 Continuous random variables 4.2 Inference using normal and t-distributions 4.3 χ^2-tests 4.4 Non-parametric tests 4.5 Probability generating functions

Further Mathematics

Cambridge International Examinations Syllabus
Code 9231

Assessment Details

Paper 1

Further Pure Mathematics 1 — 2 hours
75 marks
6 to 8 structured questions based on the Further Pure Mathematics 1 subject content
Answer all questions
Written examination
Externally assessed
60% of the AS Level
30% of the A Level
Compulsory for AS Level and A Level

Paper 2

Further Pure Mathematics 2 — 2 hours
75 marks
7 to 9 structured questions based on the Further Pure Mathematics 2 subject content
Answer all questions
Written examination
Externally assessed
30% of the A Level only
Compulsory for A Level

Paper 3

Further Mechanics — 1 hour 30 minutes
50 marks
5 to 7 structured questions based on the Further Mechanics subject content
Answer all questions
Written examination
Externally assessed
40% of the AS Level
20% of the A Level
Offered as part of AS Level or A Level

Paper 4

Further Probability & Statistics — 1 hour 30 minutes
50 marks
5 to 7 structured questions based on the Further Probability & Statistics subject content
Answer all questions
Written examination
Externally assessed
40% of the AS Level
20% of the A Level
Offered as part of AS Level or A Level

Skills Developed

Knowledge and understanding

Confident by using and sharing information, ideas and using mathematical techniques to solve problems. These skills build confidence and support work in other subject areas as well as in mathematics.

Responsible through learning and applying skills which prepare them for future academic studies, helping them to become numerate members of society.

Reflective through making connections between different branches of mathematics and considering the outcomes of mathematical problems and modelling.

Innovative, through solving both familiar and unfamiliar problems in different ways, selecting from a range of mathematical and problem-solving techniques. Engaged by the beauty and structure of mathematics, its patterns and its many applications to real life situations.

Problem solving skills in mathematics is fundamentally problem solving and representing systems and models in different ways.

Degree course this will lead to:

Actuarial Science
Aeronautical Engineering
Biochemistry
Biomedical Sciences (including Medical Science)
Chemical Engineering
Chemistry
Civil Engineering
Computer Science
Dentistry
Electrical/Electronic Engineering
Engineering (General)
Law – facilitating subjects at A-level are useful when applying for Law
Materials Science (including Biomedical Materials Science)
Mathematics
Mechanical Engineering
Medicine
Optometry (Opthalmic Optics)
Physics
Veterinary Science