

YEAR 10 CORE: ENHANCED MATHEMATICS

Enhanced Mathematics has been designed to cater to the most capable and engaged mathematics students. It provides a foundation for future studies in VCE Mathematical Methods Units 1 and 2 and also serves as an introduction to a number of different areas of study undertaken in Specialist Mathematics. The course is aimed at students looking toward employment and further study in a variety of different fields, including mathematics, finance, science, engineering, and programming.

Students will require an approved CAS calculator as prescribed on the booklist.

Prerequisites: *Students in the Acceleration and Enhancement (AE) Program and other selected students may receive a College Invitation to undertake this subject.*

SEMESTER 1

In this unit students will cover representation and manipulation of linear relations and equations, including simultaneous linear equations, and their applications in a range of contexts. Polynomial and power functions will be investigated and the techniques for the solution of these polynomial equations will also be explored algebraically. The factor and remainder theorems are applied to solve quadratic and cubic functions. Student will also study functions and relations with an emphasis on domain, range and transformations in the plane. Students will investigate applications of exponential and logarithmic functions and their graphs with a dual emphasis on by-hand algebra and use of technology to model, simulate and explore relationships.

AREA OF STUDY

- Algebra
- Functions and Graphs
- Polynomials and Power Functions
- Exponential and Logarithmic Functions

SEMESTER 2

In this unit students will cover the graphical representation of functions and the key features of graphs of sine, cosine, tangent, root, hyperbola, truncus, circles, exponential and logarithmic functions such as axis intercepts, domain and range, asymptotic behaviour, periodicity and symmetry. Students are introduced to the set of complex numbers and represent these numbers on the Argand Plane. Rates of change and an introduction to calculus are covered for polynomial functions. Students study the probability of independent and conditional events as well as multistep experiments. Finally, students use permutations and combinations to calculate the sample space and probability of various experiments.

AREA OF STUDY

- Circular Functions
- Vectors in the plane
- Real and complex numbers
- Calculus
- Probability