![Flinders University logo]

Professional development

Undergraduate Certificate in mathematics

This Undergradute Certificate is for upskilling and training to grow the STEM pipeline. It can be undertaken by teachers to address the acute shortage of mathematics teachers to build a pipeline for the future STEM workforce.

It can also be undertaken by those interested in a pathway into further engineering education, including tradespeople, and by school students as extension studies.

With an emphasis on applied mathematics, this Undergraduate Certificate introduces major areas of modern mathematics, including calculus, linear algebra, differential equations and statistics, as well as the application of mathematics to electronics and an introduction to coding.

The Undergraduate Certificate can be undertaken part-time over one year at approximately three hours online per week after hours plus potentially an intensive one week of face-to-face workshops in a year during school holidays.

What you will study

Core

Mathematics 1A

This topic aims to introduce the basic concepts and techniques of differential calculus and complex numbers. It focuses on developing a modelling and problem-solving approach to mathematics and its applications through an appropriate combination of the underlying concepts and mathematical software.

Coding/Engineering programming

The topic will cover the structure of a program, sequence, selection, iteration, assignment and expressions, arrays, operations, input and output, and principles of design and development, testing, and maintenance.

Select 2 of the following optional topics:

Mathematics 1B

This topic is a continuation of the material of MATH1121 Mathematics 1A. This topic develops the properties of elementary transcendental functions and introduces key ideas and applications of integral calculus, matrix algebra and linear algebra.

Algebra and functions

This topic introduces foundational ideas involving algebra and functions, covering polynomials, rational functions, exponentials, logarithms and trigonometric functions. These are explored by formulating problems mathematically, graphing, solving equations, and interpreting results, with a focus on real-world motivations and applications. These ideas are also used to examine and improve participants' relationship with mathematics.

Electronics

This topic provides participants with an understanding of basic electronics. It includes both analogue and digital electronics, such as number systems and signed numbers. There is also an introduction to microprocessors and microprocessor programming, and workshops on practical techniques.

Benefits to your school in nominating a candidate

Improved capacity and capability to deliver STEM educational activities.

Reduced down-time to accommodate training as the course is delivered part-time over one year.

For those wanting to pursue further study, it provides credit towards degrees in engineering, mathematics and IT.

Enquiries

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