Mathematics and Engineering at Queen's University

In response to the need in industrial research and development for engineers with a greater knowledge of applied mathematics and modelling techniques, Queen's University offers a unique program in Mathematics and Engineering. This program, the only one of its kind in North America, is fully accredited by the Canadian Council of Professional Engineers. Students develop advanced skills in practical and theoretical engineering, based on solid foundations in pure and applied mathematics.

After a common first year taken by all engineering students at Queen's, students admitted to the Mathematics and Engineering program devote studies to their chosen engineering option, along with core courses in abstract algebra, probability and statistics, ordinary and partial differential equations, boundary value problems, complex analysis, and classical control theory. Students also take a variety of fourth year/graduate courses in their respective field of specialization, such as modern control theory, Lagrangian mechanics, dynamics and control, information theory, data compression, telecommunication and data network modeling, and statistical signal processing.

Control and Robotics Option

This program was created with an eye towards the need for engineers combining knowledge of mechanics, control theory, electrical engineering, physics, and applied mathematics. At the interface of these three subjects lie disciplines like robotics, aerospace systems, and mechatronics. In all of these disciplines, and many others related to them, there is a need for an engineer with a truly interdisciplinary background, and this is what the Control and Robotics Option aims to provide.

On top of the standard rigorous program, in the fourth year students take advanced courses in mechanics and modern control theory, and have the option to take advanced courses in robotics and mechatronics. This establishes an impressive degree of depth in certain areas, on top of the breadth of the program.

In addition to the courses in mathematics and engineering, students are required to take several courses in the humanities and social sciences, as well as engineering management and economics.

It is an ambitious program whose successful completion requires a combination of engineering and problem solving ability as well as dedication and sustained effort. A graduate of this program will have an unusually diverse background, and will be able to function effectively in many engineering environments.