



MATHEMATICS, PHYSICS
AND TECHNOLOGY

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Welcome to Mathematics, Physics and Technology. Located in the T-Block on the Oakes Field Campus, we are committed to providing all of our students with a learner-centred environment that underscores academic excellence.

BACHELOR OF ARCHITECTURE

BACHELOR OF SCIENCE

- Electrical Engineering Technology
- Mathematics

ASSOCIATE OF APPLIED SCIENCE

- Electro-Mechanical Technology (UB-North only)

ASSOCIATE OF SCIENCE

- Civil Engineering Technology
- Engineering
- Mechanical Engineering Technology

BACHELOR OF ARCHITECTURE (minimum of 158 credit hours)

The Bachelor of Architecture is a five-year professional degree programme with special focus on sustainability and the built environment. The programme prepares students to address issues of Eco-tourism, Green Architecture and Sustainable Development and provides a balanced approach to the art and science of architectural design and construction. Students gain an awareness of the impact of climate change as a result of the built environment and conduct research that fosters and informs sustainable community development.

Study Abroad Requirement

In their 5th year, students spend a semester abroad at an accredited Architecture programme where they engage in upper level architecture courses. They explore issues of sustainability and design where the approach, techniques and communication of architectural ideas require a methodology suitable with the environment and climate of the area/region in which the institution is located. Students are also exposed to differing codes and regulations as they impact the area/region in relationship to the built environment as well as to issues of sustainability and design. Students should contact UB Office of Global Studies and Programmes regarding study abroad scholarship and funding opportunities.

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING TECHNOLOGY (137 credit hours)

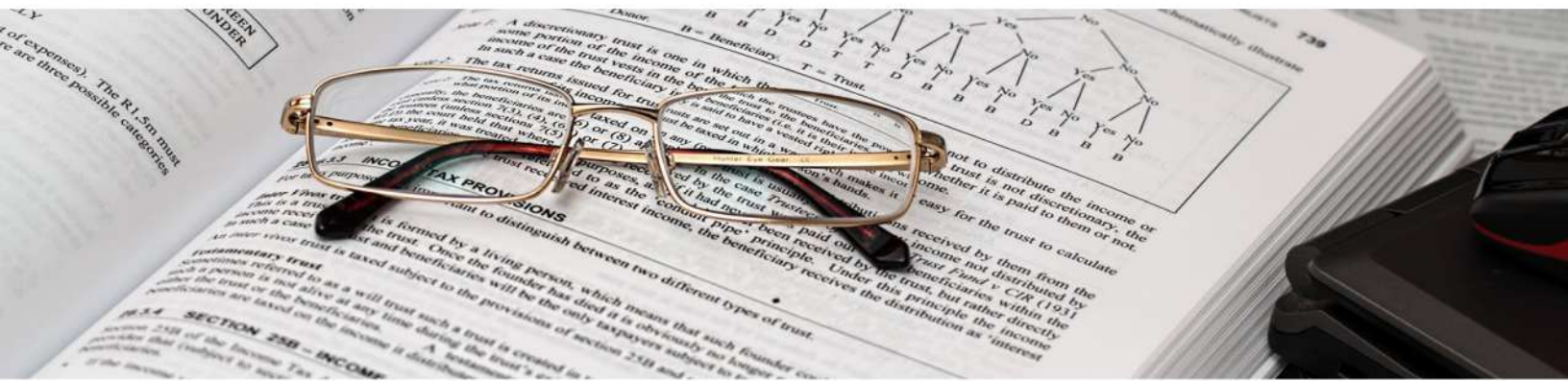
The BSc in Electrical Engineering Technology prepares engineering technologists for careers in the design, application, installation, operation and/or maintenance of electrical/electronic systems. Students are exposed to a wide spectrum of topics such as DC and AC electrical circuits; analog and digital electronic circuits and systems; microprocessors; analog and digital communications; electronic controls, electrical motors, generators and installation; digital signal processing; and computer programming. Theoretical courses are supported by computer simulation and computational software such as PSpice, Matlab and practical labs. The programme culminates in a senior capstone course which focuses on teamwork, design, construction and written and oral presentation skills. Students are encouraged to join the UB Chapter of the National Society of Black Engineers to learn about trends in engineering education and practice, engage in community service and attend U.S. Chapter activities.

The BSc in Electrical Engineering Technology prepares students for graduate programmes in electrical engineering or allied disciplines and for a variety of entry-level positions.

BACHELOR OF SCIENCE IN MATHEMATICS (127 credit hours)

The BSc in Mathematics immerses students in the core areas of calculus, finite mathematics, linear algebra, differential equations and statistical analysis. Students are also exposed to the rigours of advanced calculus, geometry, probability theory, numerical methods, real analysis, abstract algebra, number theory, complex variables and computer programming. They perfect their problem solving, logical reasoning and critical thinking skills, while applying mathematical concepts and principles in a variety of contexts. In their final semester, students complete a capstone inquiry-based, independent study research course which culminates in a final paper and an oral presentation.

The BSc in Mathematics prepares students for a variety of exciting opportunities. They may pursue graduate studies in mathematics or any branch of science or computer programming, various facets of engineering, or selections as diverse as social science and communication. There are extensive career opportunities, as mathematics is structurally relevant to every discipline. Employment opportunities include areas such as research, actuarial science, data analysis, economics, statistics, finance, technology and education.



ASSOCIATE OF APPLIED SCIENCE IN ELECTRO-MECHANICAL TECHNOLOGY (UB-NORTH ONLY) (70 credit hours)

The AASc in Electro-Mechanical Technology, designed specifically for students at UB-North, seeks to provide a cadre of world class tradesmen in the key areas of Metal Fabrication, Welding, Mechanical and Pipefitting. Students are exposed to a broad range of general and specific technical education courses and are provided with the necessary theoretical and laboratory preparation for the trade application. Students take foundational courses in General Physics, AC Circuits, Statics and Chemistry; they take courses in Material Science, Dynamics, Electrical Devices and Machines; and select three of the following areas for in-depth study and analysis -- Fluid Mechanics, Strength of Materials, Mechanical Fabrication Technology, Electrical Devices and Machines II. The AASc in Electro-Mechanical Technology ensures that students learn concepts and principles, develop problem solving skills and participate in field experiences which link theory to practice.



ASSOCIATE OF SCIENCE IN CIVIL ENGINEERING TECHNOLOGY (75 credit hours)

The ASc in Civil Engineering Technology is designed for persons wishing to pursue careers in the construction industry, particularly commercial and industrial buildings. Emphasis is on structures, management and cost control. The programme comprises three levels of courses: level one consists of foundational courses in the physical sciences; level two focuses on engineering science; and in level three the engineering sciences are applied in courses such as structural analysis, reinforced concrete design, steel design, construction management, construction contracts and others.

Students learn concepts and principles, develop problem solving skills and participate in field exercises which link theory to practice. They are encouraged to join the UB chapter of the National Society of Black Engineers to learn about trends in engineering education and practice, engage in community service and attend U.S. Chapter activities.

The ASc in Civil Engineering Technology is ideally suited for persons interested in bachelor degree programmes in Civil Engineering Technology, Construction Engineering Technology, Construction Management and other related disciplines. It is also suited for persons wishing to enter the construction industry as site foremen or engineers, construction managers and other middle level positions or persons wishing to enter government or quasi-government agencies such as the Ministry of Public Works, Water and Sewerage and the Ministry of Housing.



ASSOCIATE OF SCIENCE IN ENGINEERING (72 credit hours)

The ASc in Engineering prepares students for entry-level positions in the workforce and for transfer into bachelor degree programmes in Engineering. The programme is mathematics and science intensive, combining mathematics, science and engineering courses. Students acquire knowledge, skills and competencies to design and conduct experiments as well as analyse and interpret data. They also learn to identify, formulate and solve simple engineering problems. Students are encouraged to join UB's chapter of the National Society of Black Engineers.

ASSOCIATE OF SCIENCE IN MECHANICAL ENGINEERING TECHNOLOGY (71 credit hours)

The ASc in Mechanical Engineering Technology is ideally suited for persons wishing to pursue careers in the mechanical and related industries involving equipment and machinery design, manufacturing, fluids, structural applications and the like. Students acquire a foundation in physics and proficiencies in materials science, thermodynamics, mechanical fabrication, properties and applications of fluids and solids, the mechanics of forces, equilibrium and motion necessary for the preliminary design and manufacture of products and systems. Such fundamentals facilitate the diagnosis of and solutions to practical problems in mechanical engineering technology.

The programme prepares students for entry-level positions in the workforce as well as for transfer into the final two years of a four-year bachelor degree programme in mechanical engineering technology.



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