ENGINEERING

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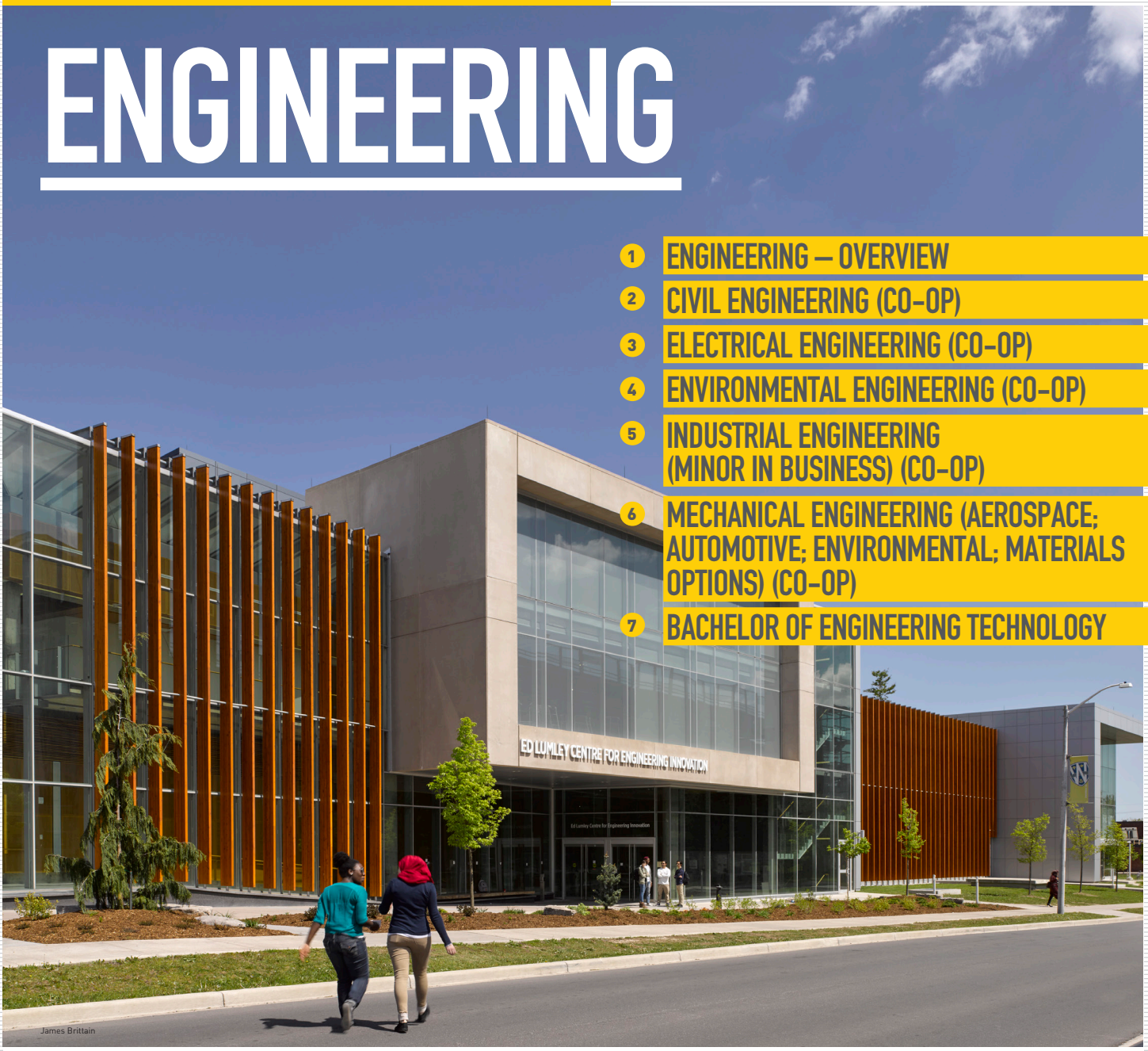

James Brittain

1 BACHELOR OF APPLIED SCIENCE IN ENGINEERING

The demands on professional engineers around the world are increasing in terms of what they must address: technical, societal and environmental issues.

As an engineer, you can contribute to society by helping plan communities, provide clean drinking water, build bridges, or design the next-generation automobile.

The Faculty of Engineering offers programs designed to develop your professional competence and prepare you to solve the technical problems of society and the global environment. UWindsor's unique climate of co-operation between academic, business and industry sectors gives you access to outstanding career opportunities.

OUR DEGREE PROGRAMS INCLUDE:

- Civil Engineering
- Environmental Engineering
- Electrical Engineering
- Industrial Engineering (general degree, or with a Minor in Business Administration)
- Mechanical Engineering (general degree, or with options in Aerospace, Automotive, Environmental, and Materials)

University of Windsor

FIRST YEAR

All engineering programs begin with a general first year that provides students flexibility in program choice. In your first year, you will learn and explore subjects important to engineering, including:

- Forces, motions and movement
- Electricity and magnetism
- Mathematics and its applications
- Design and graphical communications
- Chemical and material interactions
- Technical communications
- Professional issues in the engineering disciplines
- Thermodynamics, fluids and heat transfer

ADMISSION REQUIREMENTS

All Engineering streams require a minimum 74% average from the top six high school courses, as well as an average of 74% between MHF4U, SCH4U, and SPH4U. MCV4U is strongly recommended.

EXPERIENTIAL LEARNING

The Faculty of Engineering's co-op option in many of its programs gives you a well-rounded education founded both in academic theory and real-world application.

By combining your studies with full-time, paid employment in career-related positions, you can apply what you learn in the classroom, gain related, hands-on experience, network with employers, explore career options and learn how to compete confidently in the job market.

We offer placement opportunities with a wide range of corporate partners and government agencies.

WINONE OFFICE

The Faculty of Engineering WINONE Office provides additional counselling, explains the educational requirements of your degree and gives you extra support to help you succeed. The office can also connect you with other services on campus to help you make the most of your university experience.

A FIRST-CLASS FACILITY

Our new, $112-million Ed Lumley Centre for Engineering Innovation (CEI) rivals the technical sophistication of any postsecondary institution in Canada. The CEI meets the highest environmental standards and provides learning opportunities throughout the facility.

CAREER PATHS

- State-of-the-art manufacturing and production
- Aerospace industry
- Renewable energies
- Systems design/operation/ building/maintenance
- Water resources
- Transportation
- Pollution control and prevention
- Advanced computing and communications
- Medicine and medical technology
- Bio-based engineering
- Structural design
- Failure analysis
- Construction and infrastructure renewal
- Scheduling and optimization
- Automotive industry
- Environmental protection
- Project, process and systems management
- Robotics and advanced electronics
- Power generation and distribution

CONTACT US

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2 CIVIL ENGINEERING (CO-OP OPTION)

As a civil engineer, you will play a critical role in designing, upgrading, and maintaining infrastructure. Civil engineering is one of the broadest areas of engineering practice, and includes multiple fields of practice, such as structural analysis and design, roadways and smart transportation innovations, bridges and superstructures, municipal works, geotechnical applications, hydraulics and waterways, and much more.

PROGRAM DESCRIPTION

The Department of Civil and Environmental Engineering offers two separate degree programs: Civil Engineering and Environmental Engineering. Both programs are similar in many respects, but each offers its own unique strengths.

If you choose to specialize in civil engineering, after first year, you will take such courses as structural analysis, soil mechanics, the mechanics of deformable bodies, fluid mechanics, construction management, transportation, as well as how to design structures composed from wood, concrete and steel. These will serve as a broad base to establish a career in the many different areas related to civil engineering.

CAREER PATHS

Civil Engineering graduates are employed in a wide arange of fields, including:

- Construction
- Overseeing municipal operations
- Projection management
- Design/analysis for new or rehabilitated structures and systems

They may be employed in such businesses as design firms, consulting firms, government operations, and industrial companies.

CONTACT US

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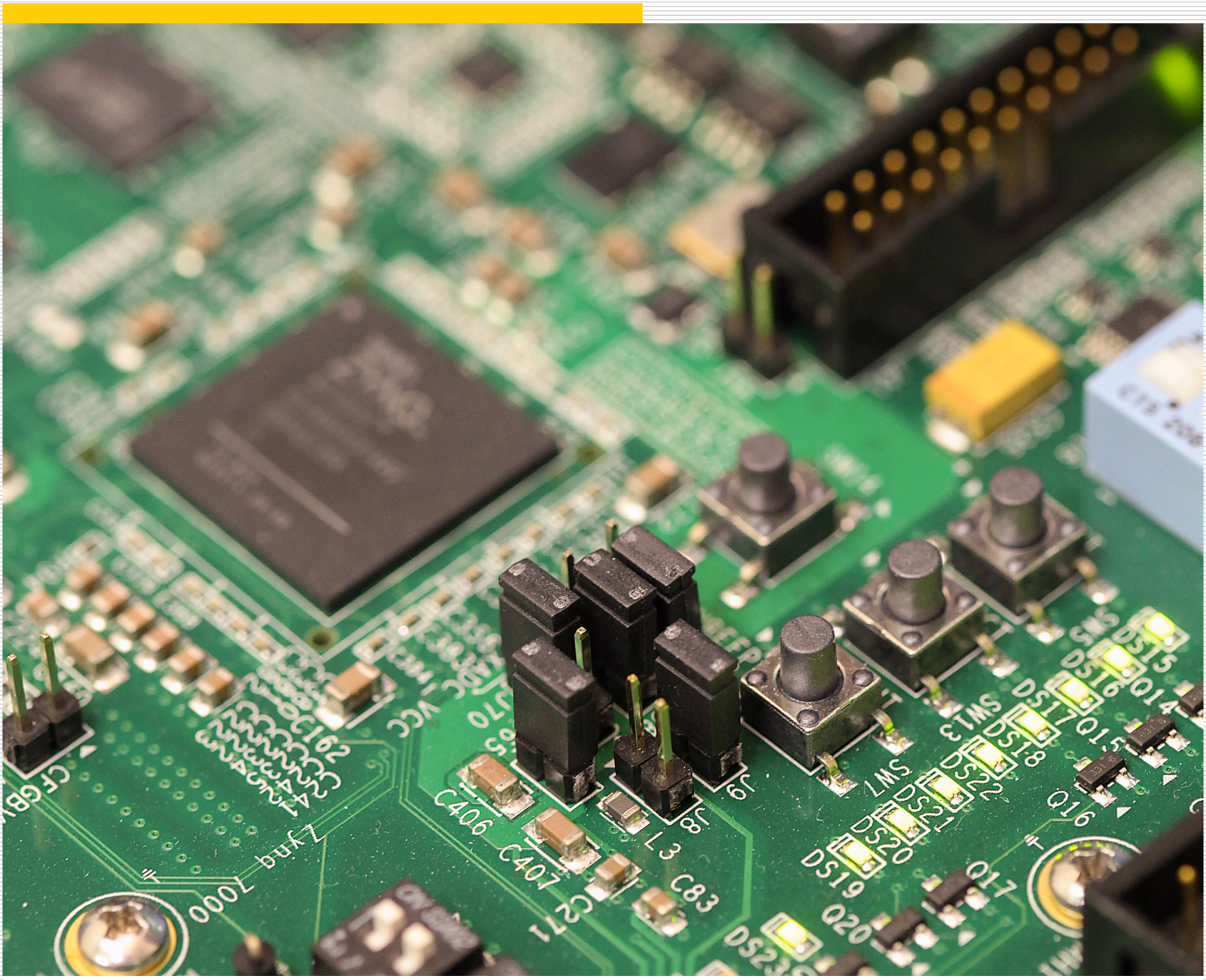

3 ELECTRICAL AND COMPUTER ENGINEERING (CO-OP OPTION)

Electrical and Computer Engineering offers you a diverse range of exciting opportunities in high-tech industries. As an electrical engineer, you might design communications systems, electrical power grids, circuits, electric motors, electronic sensors, and many more of the technologies and applications so important to society today.

PROGRAM DESCRIPTION

After first year, you will take courses in: numerical programming; circuit analysis; digital design; electromagnetic fields and photons; signals; and physical electronics.

Third- and fourth-year courses include: microprocessors; analog communications; intelligent computing; power electronics; computer networks and security; wireless communications; and digital computer architecture.

In fourth year, you can select technical electives that focus on communications, computer engineering, electronics, or a cross between various areas of interest.

CAREER PATHS

Our graduate work in many high technology fields, including:

- Telecommunications
- Computers
- System integration
- Microelectronics
- Power distribution
- Industrial automation

CONTACT US

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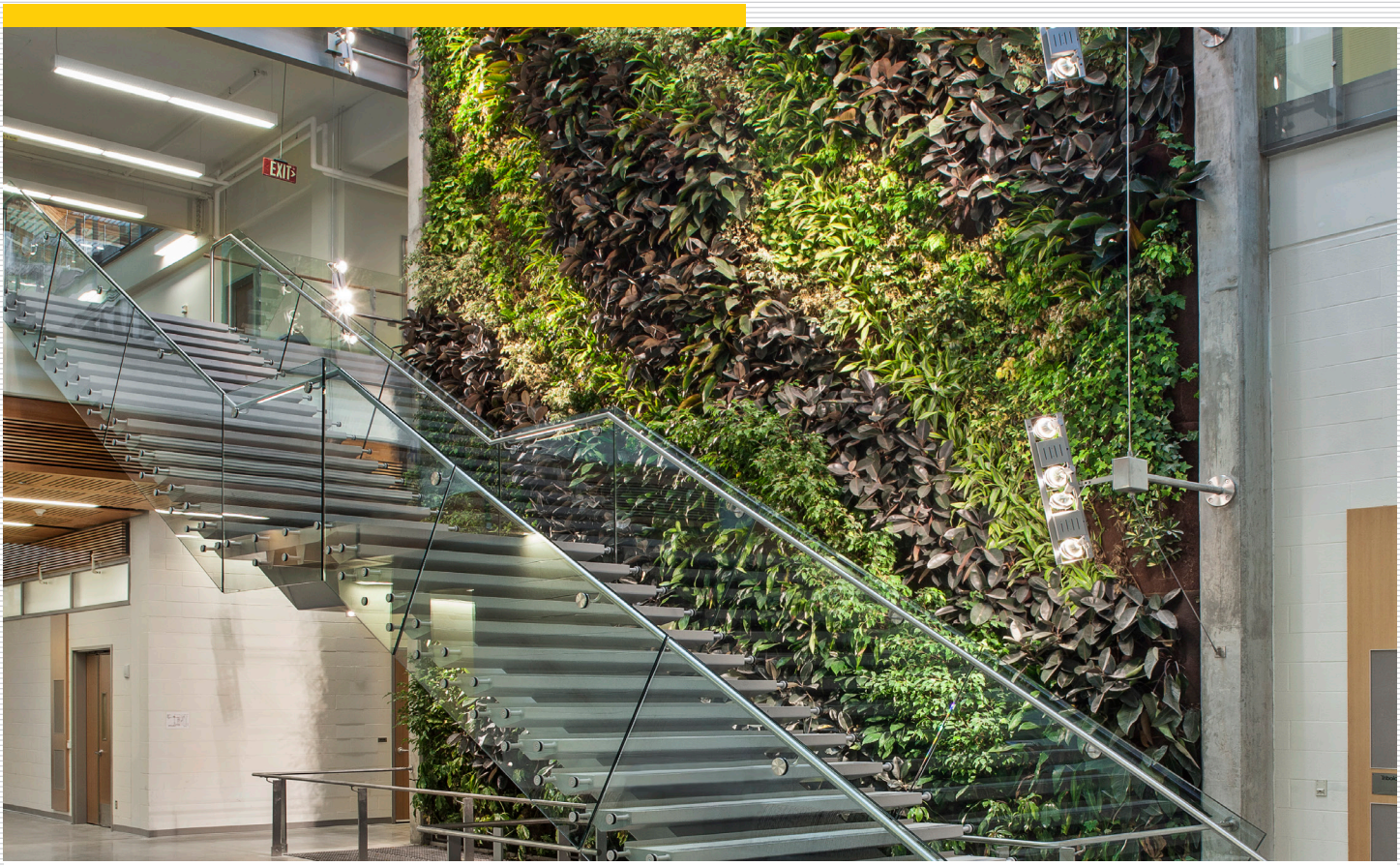

4 ENVIRONMENTAL ENGINEERING (CO-OP OPTION)

Environmental engineers use chemistry, biology, ecosystem, and engineering principles to assess, remediate, and monitor air, water, and land pollution challenges. Environmental engineers address multiple issues, ranging from how to minimize climate change effects on our infrastructure and systems, to providing clean drinking water, to cleaning wastes before they re-enter our ecosystems. Ensuring that our operations are sustainable for future generations is one of the greatest challenges facing society, and environmental engineers are part of the solution.

PROGRAM DESCRIPTION

The Department of Civil and Environmental Engineering offers two separate degree programs: Civil Engineering and Environmental Engineering. Both programs are similar in many respects, but each offers its own unique strengths.

UWindsor offered the first environmental engineering degree program in Canada. After your first-year studies, you will specialize in subjects such as air pollution, water pollution control, chemical reaction engineering, environmental microbiology, waste management, and assessing the sustainability and environmental performance of engineering projects and systems. These will serve as a broad base to further develop and apply your environmental expertise to a wide variety of environmental situations that may face industry and the community.

CAREER PATHS

Environmental engineers are employed in many different capacities, ranging from overseeing water treatment operations, to develop design solutions to remediate pollution, to monitoring environmental operations of large scale operations, such as manufacturing. They may be employed in consulting firms, municipalities or government agencies, or within industry sectors as environmental specialists.

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5 INDUSTRIAL ENGINEERING (MINOR IN BUSINESS; CO-OP OPTION)

Industrial engineers help organizations operate efficiently and cost effectively. As an industrial engineer, you may use intelligent processes to streamline production systems, design flexible manufacturing approaches, and you will use a wide range of knowledge to do so, including operations research, manufacturing sciences and enterprise resources planning/ integration.

PROGRAM DESCRIPTION

The University of Windsor Department of Mechanical, Automotive, and Materials Engineering offers one of the few undergraduate degree program in Industrial Engineering in Canada. Our program will allow you to engineer how systems interact with one another.

We also offer Industrial Engineering with a Minor in Business Administration, in co-operation with the UWindsor Odette School of Business. This curriculum will prepare you for management and leadership careers in industry and manufacturing within four years.

CAREER PATHS

Graduates in industrial engineering are employed by many industries to improve their services and costs, including:

- Manufacturing
- Banking
- Rail transportation
- Air transportation
- Insurance
- Health care (Hospitals)
- Retail

CONTACT US

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6 MECHANICAL ENGINEERING (GENERAL; AEROSPACE, AUTOMOTIVE, ENVIRONMENTAL, AND MATERIALS OPTIONS; CO-OP OPTION)

Mechanical Engineering includes two broad areas of study: thermofluids (which involves heat and power) and solid mechanics (designing mechanical parts, determining the forces on those parts during operation, and analyzing their performance as part of larger machines and systems.)

PROGRAM DESCRIPTION

Mechanical, Automotive and Materials Engineering is a multi-faceted program in which you'll tackle real-world problems, interact with local industry, and enjoy a hands-on experience.

You can choose to stay in the General stream and not declare an option, or choose one of the following:

1) Aerospace Option – learn about the fundamentals behind aerospace design, and especially the manufacturing, maintenance, and logistics involved in serving the aerospace industry

2) Automotive Option - study such topics as vehicle dynamics, internal combustion engines, diesel technology, and fuel cell technologies. A highlight is the opportunity to design, build and race vehicles in events sponsored by the Society of Automotive Engineers

3) Environmental Option - focus on such subjects as water/wastewater treatment, noise control and abatement, environmental assessment, and recycling and materials recovery

4) Materials Option - evaluate the structure and properties of metals, ceramics, polymers and composites to optimize designs.

CAREER PATHS

Graduates can be found at all levels of engineering and management from small private companies to larger, multinational corporations, and government ministries and services.

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7 BACHELOR OF ENGINEERING TECHNOLOGY

Engineering technology focuses on the applications of engineering and modern technology in such areas as product improvement, manufacturing, construction, and engineering operations.

PROGRAM DESCRIPTION

Our program will prepare you for the job market by complementing your hands-on college experience with an in-depth theoretical university education. This program is for you if you hold one of the following:

a) A three-year technology diploma from a Canadian college (or an equivalent overseas institution)

b) An engineering degree from an accredited Canadian university (or an equivalent overseas institution)

c) A four-year university degree in a scientific or technical subject from a Canadian university (or an equivalent overseas institution)

You must take at least 15 engineering courses at different levels, approved by the faculty.

In addition to the general 15-course Bachelor of Engineering Technology (BEng Tech) degree, we also offer 20-course BEng Tech concentrations in Civil Engineering and Mechanical Engineering.

Your course schedule will be set and discussed by an academic advisor to ensure your successful completion of the program. The nature of these depends on the concentration of your college diploma or previous university degree.

CAREER PATHS

BEng Tech graduates can look to a variety of technical fields, including:

- Product design, testing and/or development
- Systems engineering
- Field engineering
- Technical operations
- Quality control

CONTACT US

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FINANCIAL AID

For entrance and in-course award opportunities for our engineering programs, please visit our Award Search at **my.uwindsor.ca**. Click on the Financial Matters heading and then Search for Awards in the sidebar.

In addition to entrance awards, the **Outstanding Scholars Program** attracts top high school students entering any first-year honours undergraduate program at the University of Windsor. Approximately 100 high-achieving, first-year students will be offered status as an Outstanding Scholars Candidate in Year 1 of their studies. The goal of this program is to challenge and stimulate students by providing them with the unique opportunity of holding an undergraduate academic appointment in their second year of studies and beyond where students will work closely with faculty on academic research projects.

For more information, please visit: **uwindsor.ca/outstanding scholars**