



# Gain your Engineering Edge

UNIVERSITY OF CALGARY



**SCHULICH**  
School of Engineering



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**Engineers turn dreams into reality.**

Hayao Miyazaki

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## Engineering Edge

At the University of Calgary's Schulich School of Engineering, access an enhanced education with our customized student services and brand-new facilities, develop engineering expertise with the most comprehensive career supports available, benefit from exceptional scholarships exclusively for our engineers and savour extraordinary student experiences as you travel the world pursuing your passions.

Launch your successful career with the Schulich Engineering Edge.





## Enhanced Education

Study in brand new facilities in our transformed engineering complex. Benefit from free tutoring to make the most of your courses. Recharge between classes at Schulich Wellness, with yoga and meditation, exercise bikes, and a decompression-zone. Gain valuable advice from older students with our engineering mentors or seek guidance from the Engineering Student Centre on which program is right for you. At Schulich, at least 95 per cent of first-year students continue into second year. We're invested in helping you reach your potential.

## Engineering Career Expertise

Other schools offer co-ops or internships – we give you access to both. Grow your resume with 10 to 16-week, paid summer work terms after first and second year. Then, after third year choose our paid internships and spend up to 16-months working with engineering firms locally or globally. Cultivate the professional skills employers want most with the Engineering Leadership Program. Benefit from career support dedicated to helping you launch your career your way.

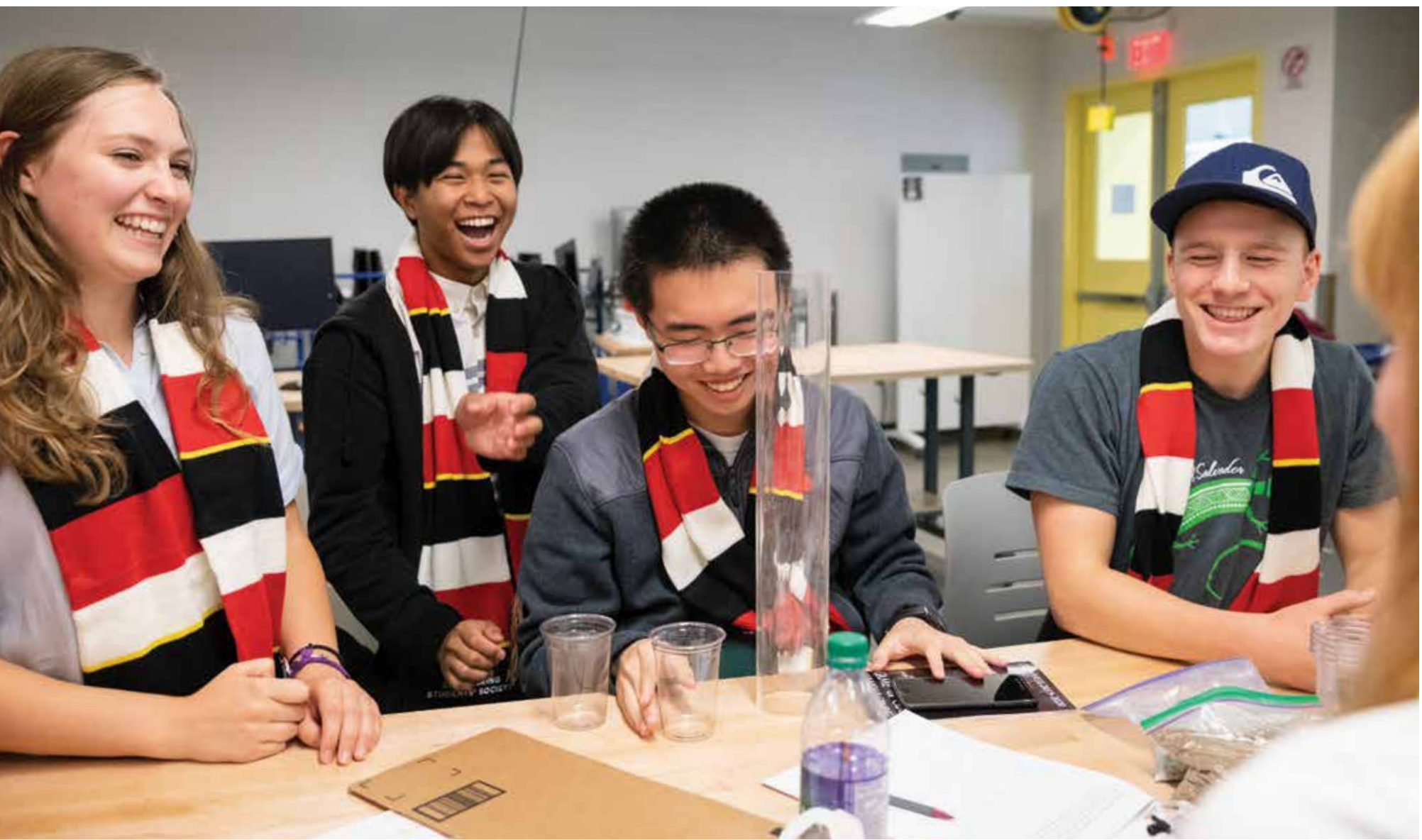
## Exceptional Scholarships

Our students earn an average of \$4.5 million a year in awards and bursaries, including prestigious engineering scholarships. Access financial support for academic excellence, community service, promoting diversity perspectives and more. Your first step to benefiting from these amazing scholarships is applying to engineering. Let us help finance your degree, so you can focus on what really matters.

## Extraordinary Experiences

Pursue your passions in the Maker Multiplex, a series of makerspaces with design labs, sound booths, dedicated student team spaces and an art studio. Get high-tech with Zetta, a digital ecosystem with virtual and augmented-reality equipment, a robotics lab and a digital design centre. Travel the world with Catalyst, where you can hone your leadership skills in the Rockies, build homes in Mexico and discover the engineering wonders of Spain, and that is just the beginning. At Schulich, meaningful student experiences matter to us.

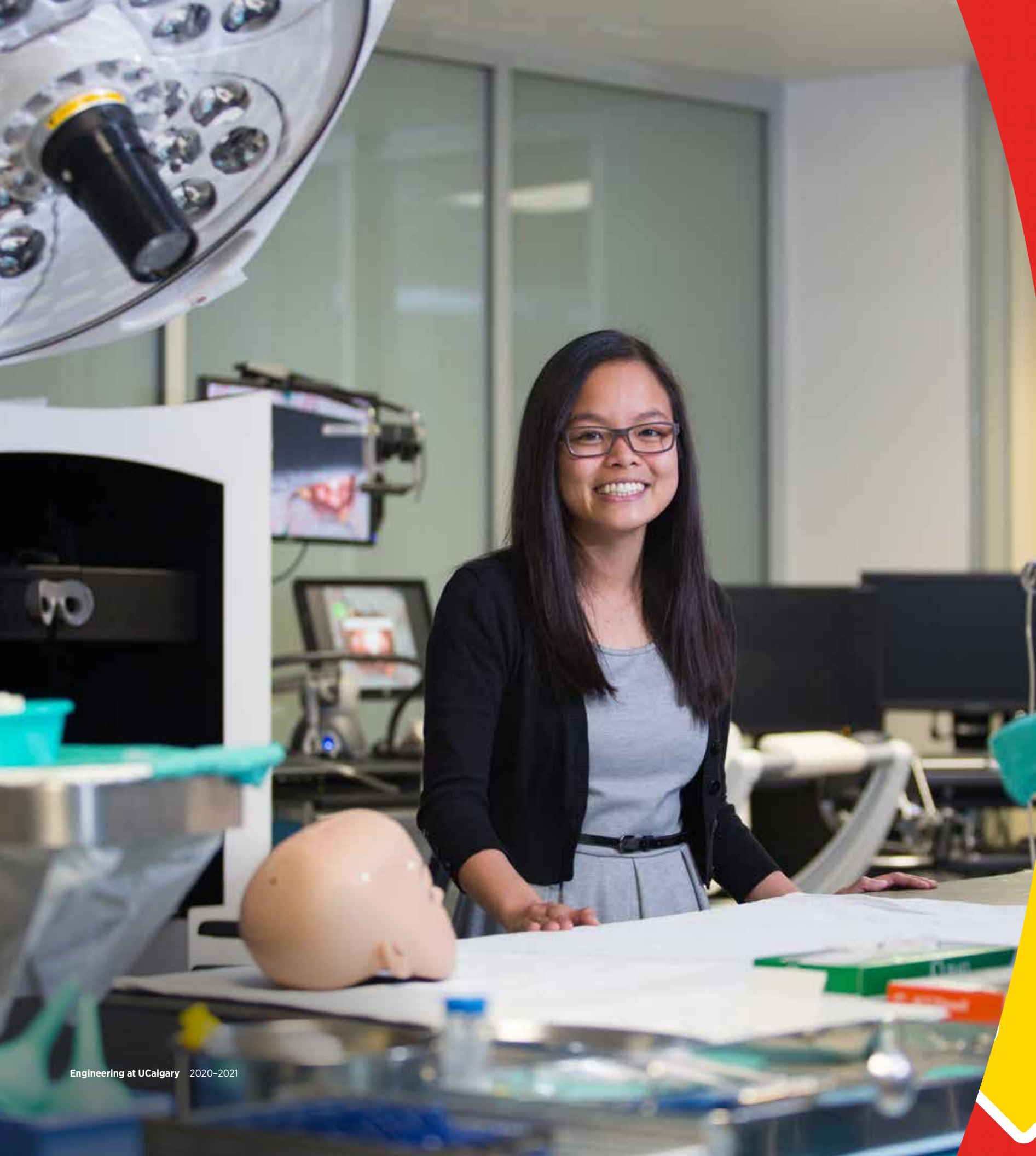




## First-Year Experience

It's hard to know which engineering discipline to major in without first-hand experience. That's why we offer a common first year. Take 10 courses in design, mathematics, science and engineering principles to prepare you for what's ahead. We place you in student blocks so you share classes and build relationships within a tighter-knit group of peers. Free tutoring from upper-year students will guide you through class material. And, when it's time to pick your major, academic advisors at the Engineering Student Centre are on hand to answer your questions. We even guarantee your first choice of program placement if you complete your entire first year with a B average (3.0 out of 4.0) or higher in all 10 technical common-core courses within one year. Experience various engineering fields and confidently choose a major in the program you want most.





## Bioengineering Summer Institute

### Embrace your journey into engineering

Do you have a passion for biology and a desire to help improve the lives of others? Our summer institute lets you experience bioengineering while giving you the physics foundation you need for engineering.

In a special four-week course offered in August, learn how to analyze human-body-balance movements, hear from Olympic athletes who use engineering technologies to increase their performance, and explore how diagnostic imaging works. Make friends and learn your way around campus before your first-year classes begin.

Students with a high school biology background, who complete the summer institute and meet the Schulich School of Engineering admission standards, will be offered full admission into engineering.





# Enhanced Education

Your journey to an exciting career starts with choosing from a diverse selection of majors



## Biomedical Engineering

Learn how to apply engineering principles and analysis to human health and medicine. Biomedical engineers design machines and instruments to see inside the body, help people recover after an injury, grow cells and tissues for transplantation, design new materials for medical devices, create software and hardware for medical applications, and design and manufacture devices such as pacemakers, artificial joints and contact lenses. As a graduate of this program you'll be qualified to become a biomedical engineer, an industry consultant or research scientist.

*Improve human and animal lives with engineering innovation.*



## Chemical Engineering

Chemical engineers convert raw materials into valuable products. Energy, healthcare, food, plastics, manufacturing: they design and oversee the process involved in producing everything from refined petroleum products to pharmaceuticals. As a chemical engineer, you will join the front lines of people making advancements in sustainability, scientific research and many other areas. As a graduate of this program, you'll be qualified to become a chemical engineer, industry consultant or process engineer.

*Embrace a career transforming raw materials into useful products.*





## Civil Engineering

Civil engineers design bridges and transit systems, explore environmental solutions to protect communities and the environment, develop clean water solutions, and so much more. As a civil engineer, you will be involved in the design, construction, operation and maintenance of almost every aspect of our built and natural environments to improve the quality of life in our communities. As a graduate of this program, you will be qualified to become a municipal engineer, structural design engineer or project manager.

*Prepare for a career enhancing communities and protecting the environment.*

## Electrical Engineering

Electrical engineers develop solutions through the research and use of electrical technologies. As an electrical engineer, you can work in a diverse range of industries including telecommunications, technology, information processing, imaging and electrical power systems. You can design better power grids, create the next big smart-phone app or improve life-support systems for hospitals. Electrical engineers are involved in almost every facet of our high-tech world. As a graduate of this program, you will be qualified to become an electrical engineer, instrumentation engineer or research scientist.

*Power your career in our high-tech world.*

## Geomatics Engineering

From mapping the bottom of the ocean to advancing aerospace navigation, geomatics technologies are used daily. As a geomatics engineer, you'll use a combination of design, computer and measurement skills to solve a variety of problems with a common attribute – spatial location. Geomatics engineers work in the field and in the lab using computer models and conducting experiments. There is increasing demand for geomatics engineers across Canada and around the world. As a graduate of this program, you will be qualified to become a geomatics engineer, entrepreneur or research scientist.

*Position yourself for success in a high-demand field.*

## Mechanical Engineering

Constructing robots, creating better wind turbines, designing musical instruments or creating a machine to diagnose sleep apnea based on a patient's snores, as a mechanical engineer, you'll use your imagination and creativity to design and build virtually anything. With 3D printing and advanced computer modelling mechanical engineers now take their ideas from concept to prototype faster than ever. You'll also be able to explore how to use new materials to improve product design with less waste. As a graduate of this program, you will be qualified to become a mechanical engineer, refractory engineer or industry consultant.

*Transform your ideas from concept to prototype, and beyond.*





## Oil and Gas Engineering

Evaluating reservoirs, overseeing drilling operations or designing production and treatment facilities, as an oil and gas engineer, you will find innovative, economical and sustainable ways to explore, develop and produce oil and gas resources. Studying oil and gas engineering in Calgary, the energy capital of Canada, means you benefit from our strong connections to the industry and our deep understanding of its needs. As a graduate of this program, you can become a drilling optimization engineer, petroleum engineer or project manager.

*Prepare to transform our energy sector.*



## Software Engineering

Create computer games, design banking systems, develop virtual realities for data management, or build intelligence and reliability into the computing devices and systems society relies on. As a software engineer, you'll be involved in every phase of software development from coding and testing right through to deployment. With the explosion of mobile computing, software engineers are in high demand, particularly to build programs that analyze data for businesses. As a graduate of this program, you can become an automation and controls design engineer, software engineer or industry consultant.

*Design the digital future and become the tech talent industry needs.*



## Engineering and Business Dual Degrees

Entrepreneurs and leaders need a mixture of technical skills and business acumen for their companies to succeed. Benefit from the only program of its kind in Western Canada by earning an engineering degree and a business degree in as few as five years. Offered with the Haskayne School of Business, access scholarships and experiences available only to students in this specialized program. With two degrees, you can take your career wherever you want to go. As a graduate of these programs, you will be qualified to become an engineering manager, management consulting analyst or entrepreneur.

*Find your formula for success with two prestigious degrees.*



## Polytechnic Pathways into Engineering

Our Energy Engineering program is open to those with an approved energy-related engineering technology diploma. In 24 months, complete your degree and be ready to work in the energy sector as an Energy Engineer. Graduates of a geomatics engineering technology program can also continue their studies and become a Geomatics Engineer in just three years. Access all of our engineering career and student services with these unique pathways. As a graduate of these transfer programs, you will be qualified to become an energy engineer or geomatics engineer, industry consultant or project manager.

*Build on your experience and further your career.*





## Expand your Options

**Offered in addition to your chosen major, broaden your career potential and grow your skills with these engaging minors.**

### **Aerospace Engineering**

This minor enables you to design and build new aircraft and spacecraft systems, including crewless aerial vehicles, flight control systems, propulsion technologies, satellite technologies, and navigation and remote sensing systems.

### **Biomedical Engineering**

This faculty-wide minor integrates the study of complex living systems with engineering principles. Learn how to apply these traditional principles to human and animal health.

### **Computer Engineering**

This minor boosts your knowledge in programming fundamentals, computer organization, integrated-circuit technology, memory and biometric systems design, embedded system interfacing, digital-signal processors, computer arithmetic and computational complexity.

### **Concentration in Cadastral Surveying**

This six-course concentration prepares you for professional land surveying. Technical electives include geodetic and engineering surveys, survey law, land use planning and hydrographic surveying.

### **Digital Engineering**

This minor allows you to develop your software engineering and coding skills while pursuing a non-software-engineering major. Learn about artificial intelligence, machine learning, the Internet of Things and more.

### **Energy and Environment**

This minor is the first of its kind in Canada. You will learn about the direct and indirect impacts energy-related activities have on the environment, as well as how to understand, avoid, reduce and solve potential problems.

### **Entrepreneurship and Enterprise Development**

This joint minor with the Haskayne School of Business helps you build entrepreneurial skills. You will learn the principles and practices of developing new ventures and managing small- to medium-sized companies.

### **Management and Society**

This minor teaches you about the role of management in our institutions and society. You will learn how to apply managerial skills in a business environment.

### **Manufacturing**

This minor involves the study of product and manufacturing-facility design. It also focuses on scheduling, inventory control, development of automated processes (robotics) and implementation of information systems.

### **Mechatronics**

This program involves the study of dynamic systems and controlled motions systems. Learn skills to work in a modern laboratory doing hands-on design of mechatronics systems.

### **Petroleum Engineering**

This minor provides students with the skills required to work in the oil and gas industry. You will broaden your knowledge with technical electives in geology and reservoir engineering.

### **Structural Engineering**

Through this minor, you will learn the skills required to plan and design a range of structures such as buildings, bridges, dams and storage facilities.

### **Transportation Engineering**

The minor focuses on highway planning and engineering, accident analysis and prevention, and public transit system planning. You will learn the skills necessary to plan and optimize a wide range of transportation systems.





## Schulich Wellness

### Engineering student resiliency

Academic success cannot exist without personal wellness. Through Schulich Wellness, learn healthy ways to handle stress and foster personal resilience. Enjoy the Schulich Wellness “decompression zone,” where you can relax, de-stress and have fun with friends. Activities hosted in our wellness centre include pet therapy, yoga and meditation. We also host workshops and programs to help incorporate mental health into the classroom. At Schulich, we’re here to support your journey from student to engineer. We’re here to help you.







## Engineering Expertise

Grow your resume from day one with the most diverse engineering-student-employment-support system in Canada.

## Engineering Career Centre

The Alka and Sanjeev Khanna Engineering Career Centre is where you can gain personal advice from engineer employer specialists. We can prepare you for your first interview, help connect you with future employers and access experts through panel discussions. We also offer two student work programs where you can earn up to a combined maximum of 24 months of paid work experience before graduation. Whether it's through career pop-ups or skills workshops, the career centre is available to you from your first day on campus.



## Engineering Career Practicum

As early as your first year, begin learning about career readiness and complete your first paid work-term. This program is open to first- and second-year students, and it features online modules to build your professional skills. Career advisors will help you apply for the right position. And, you'll have access to an exclusive summer-jobs board of 10- to 16-week work-terms.

## Engineering Internship Program

Gain valuable hands-on experience by completing a paid, 12- to 16-month engineering internship. Our students earn an average of \$55,000 a year on internship. We connect you to employers, help you navigate the application process and support you during your internship. Stay close to home or travel the globe as part of our world-class internship program.



# Engineering Leadership Program

Accelerate your career by cultivating the professional skills employers want most. Through workshops and hands-on activities, develop effective communications and time-management skills, discover how to successfully build your network, make the most of situational-leadership opportunities, and gain experience with strategic planning and project management.



# Schulich Student Mentorship Program

Navigate your first year with confidence by matching with an upper-year student with similar academic and extra-curricular interests. Learn about different programs and departments, engage with clubs and teams through a series of events. And, gain personal and professional advice from students who've been where you are.





## Maker Multiplex

Where creative ideas come to life

Engineers are designers, builders and makers at heart. They need the spaces, tools, knowledge and skills to bring their ideas to life – and that's just what we offer in the Maker Multiplex. A fleet of high-end 3D printers are available for rapid prototyping. High-tech recording booths allow for the complex manipulation of sound. Industrial tools provide access to woodworking and metalworking. Spaces are also available for the creation of wearable technologies, painting and working with other materials. With guidance and training from our qualified team of technicians, enjoy an innovation incubator right in the heart of our engineering school.





# Exceptional Scholarships

Our students earn an average of \$4.5 million a year in awards and bursaries.  
Access financial support to reach your goals.



## Schulich Leader Scholarship

We are a proud partner-university for Canada's most coveted undergraduate STEM scholarship. Valued at \$100,000 over four years for engineering students, every high school in Canada is eligible to nominate a student for the Schulich Leader Scholarship. Each year, at least one Schulich School of Engineering student is selected to receive this prestigious award.





**Seymour Schulich Academic Excellence Scholarship**

This renewable scholarship, valued at between \$13,150 and \$26,350 annually, is designed for students who excel academically throughout high school. Several of these awards are distributed each year.

**Seymour Schulich Community Service;  
Entrepreneurial Entrance Award**

Designed for students who combine athletic excellence, musical talent, volunteerism, service and entrepreneurship, this renewable scholarship is valued at between \$13,150 and \$26,350 annually.



**Schulich School of Engineering Dean’s Entrance Scholarship**

Offered to students entering their first year, this \$6,750 scholarship is awarded to those with exceptional academic merit. Preference, for one of the awards, goes to a Canadian Indigenous student.

**Diversity Champions in Engineering Award**

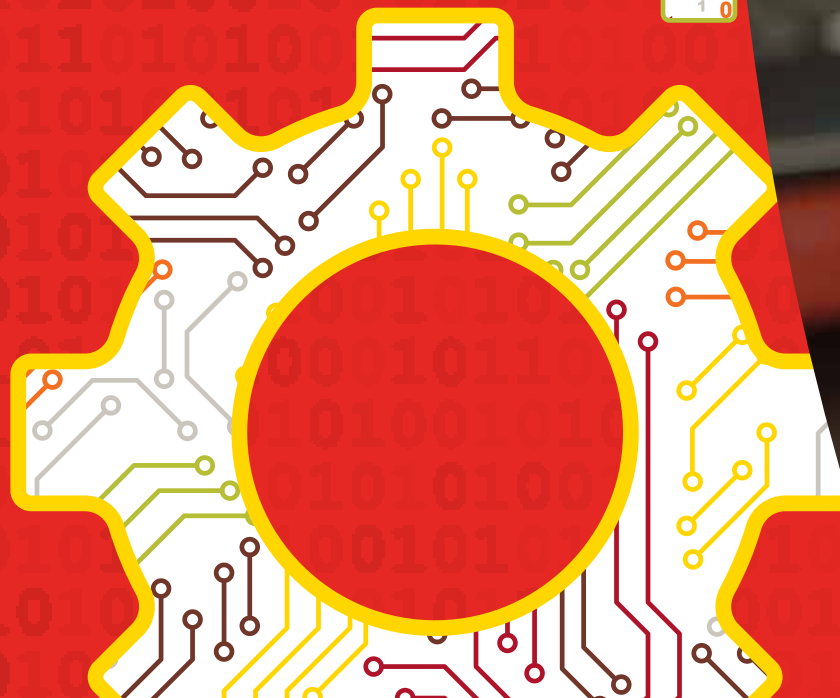
This entrance award of \$4,000 is available to first-year engineering students who act as diversity champions, helping us bring a variety of perspectives and passions to our school. Complete a brief application and email it to [sseawards@ucalgary.ca](mailto:sseawards@ucalgary.ca) by early January to be considered.



## Zetta

### Engineering our digital ecosystem

Representing  $10^{21}$ , a Zetta is massive by any calculation. It's estimated that the world will generate 175 Zettabytes of data annually by 2025. Experience Zetta - our hub of digital innovation. It features a digital design lab where workshops and hackathons take place and student groups can come together to work on artificial intelligence, machine learning and cloud computing projects. Over in the fully equipped virtual reality lab, explore virtual and augmented reality, and mixed reality applications. We also have an Internet of Things lab for sensor and software development. Here, data from the IoT is collected, brought together, analyzed and displayed. Gain the tech skills you need to become a leader in the digital revolution.





# Extraordinary Experiences

Explore your interests, discover foreign lands and unearth new talents through dynamic student experiences that take your learning to the next level.



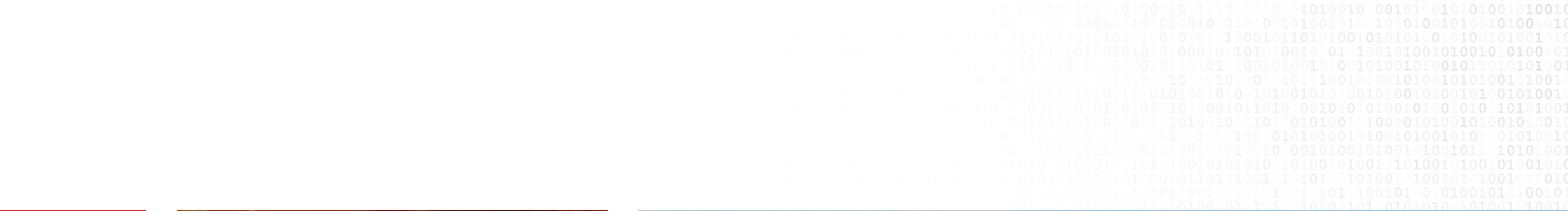
## Studying is Only the Beginning

Volunteer with Engineers Without Borders, perform concerts with Schulich Soundstage, design a new solar car, or speed down the hill in the Great Northern Concrete Toboggan race. We have more than 80 engineering student clubs and teams, each with dedicated spaces and equipment to support building, designing or creating. You'll build connections and friendships while making great memories.

## Making Pursuits Possible

Being a student is the ideal time to be bold and broaden your horizons. We distribute up to \$500,000 through the Schulich Student Activities Fund each year to give you opportunities to explore. This unique fund supports clubs preparing for team competitions, and students attending conferences or participating in international learning experiences. With our help, take advantage of experiences that last a lifetime.





## Global Engineering Experiences

Work, volunteer or study – the world is at your fingertips. Participate in our Global Community Projects where you can solve engineering challenges in developing countries. Spend your winter reading break exploring engineering industries, services and history in other parts of the globe. Or, test your ideas abroad through Global Engineering Entrepreneurship trips. A global education awaits.

## Outdoor Leadership Experiences

Whether it's backcountry skiing in the Columbia Icefields or creating snow shelters in Kananaskis, our Outdoor Learning Experiences program is designed to test your teamwork skills, develop your ability to overcome adversity and practice problem-solving in the Canadian Rockies. Awaken your inner leader in the great outdoors.



## Catalyst

### Engineering leadership and entrepreneurial spirit

Catalyst is all about offering you hands-on student experiences outside the classroom to ignite understanding and inspire careers. Develop professional skills through hands-on leadership training and mentoring programs. Test your ideas through international team competitions and student conferences. Experience a truly global education through our global learning experiences and outdoor leadership program. Discover what it takes to create your own product or venture with Launchpad – offered in partnership with the Hunter Hub for Entrepreneurial Thinking. Spark a bright future with Catalyst.





## Unlock your Future

If you are looking for an engineering education where you can also boost your resume with new skills and extraordinary student experiences – then the University of Calgary's Schulich School of Engineering is the ideal place for you. With our holistic educational approach, and focus on providing you with opportunities to launch your career, it's time to experience the Schulich Engineering Edge.





**With an enhanced  
education, career expertise  
and extraordinary  
experiences, we can't wait  
to help you launch your  
career with the Schulich  
Engineering Edge.**

Bill Rosehart  
Dean, Schulich School of Engineering

