USASK ENGINEERING

Undergraduate Studies 2024-2025

BE WHAT THE WORLD NEEDS

UNIVERSITY OF SASKATCHEWAN
College of Engineering
ENGINEERING.USASK.CA

Who are ENGINEERS?

innovative imaginative

The answers might surprise you.

Engineering is not just for people who excel at math and science.

You'll also find students who are interested in entrepreneurship, the arts, social justice, agriculture, medicine, and more!

There's a place for you in engineering.


creative
curious
observant
passionate
analytical
artistic
persistent
problem solvers
difference makers

RE-ENGINEERED

A first-year engineering program that's built to help you succeed.

- We've changed the first-year engineering timetable to help you with school/life balance.
- First-year classes are shorter, modular and strategically sequenced so you can take what you've learned in one class and apply it in another.
- You'll be graded on your competency and skills, with multiple opportunities to show understanding of key concepts, and have chances for 'do-overs'.
- You'll be placed in a Study Squad with other first-year students so you can work on assignments and homework together – a proven way to learn.
- Course content is broader and more relevant to real-world engineering.
- By the end of your first year, you will be better prepared for upper-years classes and ultimately your engineering career.

ACADEMIC SUPPORTS

BALANCED SCHEDULE

CHANCES TO TRY AGAIN

HANDS-ON LEARNING

COMMON BREAKS

MODULAR COURSES

"A lot of people don't go into first-year university with a whole lot of connections and they did a great job putting kids into a group that they can really connect and learn with."

Mitchel Van Kessel,
first-year engineering student

RE-ENGINEERED

Supports Redesigned to help you learn and succeed

Engineering Jumpstarts *(formerly Summer Top Ups)*

Engineering Jumpstarts are online resources and automated assessments that help you review key high school material (and maybe introduce some new concepts too) that are needed in engineering, so you get off to a strong start!

Block Registration

Instead of choosing individual courses, you will register for one block of classes that contains a schedule with all your classes and labs. There are about 50 students per block and you will have all your courses together.

Study Squads

Get instant friends and study partners from Day One with Study Squads! You will be placed in a squad and required to do certain assignments together, giving you a ready-made group for doing homework and making connections.

Study Sessions

Every Monday-Thursday there are structured study sessions where you can get help on multiple classes; it's also a structured space to study and complete assignments.

RE-ENGINEERED *Assessment*

Refocused so you can master the skills you need

Graded on specific skills

Your grades will reflect your competency and skills, not how well you can memorize large amounts of material.

Chances to try again

You will have opportunities to improve your grades during our Fall and Winter Top Ups. Our goal is to ensure you feel confident in the skills you'll need during your degree and your engineering career.

No penalty for early mistakes

We care about your learning, and we want you to improve. If you get a better grade on your second or third try - that's the grade that will count!

RE-ENGINEERED *Classes*

Revitalized course content to help you build a strong foundation

Strong transition to engineering

- Engineering Jumpstarts before you start classes in fall so you know you're prepared for first year
- Introduction to engineering: scope of the profession and career paths

Broader exposure to natural sciences

- Strong introduction to natural sciences in Fall Term
- Short courses in chemistry, biology, physics and geology rather than one natural science elective

Introduction to all engineering disciplines

- Spend a day with each of your top discipline choices before you choose your major in the Winter Term
- Take part in the Discipline Bridge Course at end of Winter Term to get motivated and excited about second-year engineering

Holistic approach to the engineering profession

- Business content focussed on awareness of entrepreneurship and how it connects to design
- Learn Indigenous cultural context, setting the stage for the integration of Indigenous content in the curriculum

Greater employability after first-year

- Proficiency in one computer-programming language
- Training in basic first-aid, CPR, and WHMIS and understanding of an engineer's professional obligation for health and safety

Beyond RE-ENGINEERED

More reasons to choose USask Engineering

- We're large enough to offer eight engineering programs accredited by the Canadian Engineering Accreditation Board, but small enough that you can get to know your classmates and professors.
- Receive mentorship and real-world engineering experience with our Engineering Co-operative Internship Program.
- Join one of our many student groups and gain hands-on design and fabrication skills beyond the classroom.
- Choose from one of our degree options (focus areas) to specialize your studies.
- Explore our dual degree options to expand your employability.
- Learn specialized communication, technical innovation, and entrepreneurship skills at the Ron and Jane Graham School of Professional Development.
- You'll be joining a proud USask Engineering community: our Alumni are known for their work ethic, resourcefulness, and leadership.

Even more HANDS-ON LEARNING

Practical experience in our labs and beyond is a key part of your USask Engineering degree.

Discipline experience course

Not sure what Engineering major to choose? In December you will spend a week learning about the different majors you can take at USask. Get hands-on experience in the labs, talk to engineers who work in the field, and really get to know each discipline before you pick your major!

Virtual reality

Design and test bridges and trusses in our first-year virtual reality lab. No worries if your bridge collapses, you can try again in seconds!

Small class sizes

In depth experiences in our labs, more time with your professors, and one-on-one help from our teaching assistants - it's all possible at USask Engineering.

Bridge course

Transition from first-year engineering to your second year with our Discipline Bridge Course! Instead of writing final exams in spring, engineering students do hands-on work in their chosen discipline, such as learning how to survey, build rockets, or write code.

Co-op internship

Get real-world experience before you graduate! Expand your skills beyond the classroom and build your resume.

What our students say about
RE-ENGINEERED

What was it like getting chances to try again on tests and quizzes?

"The amazing thing with CBA (competency-based assessment) is that normally on your first try, you get nervous and you fail, or you don't know something that's really specific. But with CBA, before your second try they give you feedback, they give you something you can improve so you're going to get a better grade. This was amazing because I could show my abilities or my knowledge in a second chance and I could learn from my mistakes from the feedback provided."

-Maria Emilia Guerra, first-year engineering student

How did you feel about your experience in RE-ENGINEERED?

"I think the RE-ENGINEERED program is a great way to tackle engineering differently. I think it did a great job preparing us for what's to come. And, you know, I have a lot more experience and skills than I would in a regular year."

-Maria Emilia Guerra

How did you get help if you needed it?

"The instructors were very vocal with communication and often they'd email you within the day at most. And every day there's help sessions after classes on the specific subject so you can go to the Engineering Building and get real help from the TAs (teaching assistants) who mark your projects and know actually exactly what they're looking for in the assignments."

-Logan Kleppe, first-year engineering student

Was the discipline experience useful?

"The discipline experience is really awesome because every design principle we're learning is directly applied to what we're doing in class. We know we're going to have to use these principles as we go on to the next three years. It really brings everything together."

- Logan Kleppe

First-year engineering student Maria Emilia Guerra moved to Canada from Ecuador for the RE-ENGINEERED program. She was the winner of a USask International Excellence scholarship.

Engineering grad Stephanie Lipoth during her co-op work term

Kickstart your career WITH CO-OP

The Engineering Co-operative Internship Program is a full-time, paid work-integrated learning placement, which includes between four and twenty months of engineering work experience in industry. By participating in the program, students apply the theoretical knowledge acquired throughout their undergraduate studies to a practical and challenging workplace environment.

Competitive salary

Co-op students and interns earn a competitive salary, may receive benefit packages, and earn vacation pay, all while maintaining their full-time student status. In 2023, the average student salary was $27.50 per hour and ranged from $15 to $38, depending on the industry and the student's year of study.

Flexible term lengths

4, 8, 12 and 16-month work term options. Students can do more than one internship with a maximum of 20 months of work experience.

Get real-world experience

Students develop a professional network, hone their engineering skills and can gain engineering-focused work experience.

Easy to join

Our non-competitive program is open to all engineering students. To be eligible for the program, you must be in good academic standing, have completed your first-year engineering common core classes, and officially chosen a major.

EXPLORE CO-OP

Be supported

Students receive support from an industry mentor and a workplace supervisor throughout their work term placement.

Students in the Graham School of Professional Development

Learn skills needed by INDUSTRY

Be more marketable to future employers! Earn certificates to complement your engineering degree.

Specialized certificates in communication

Leadership and Negotiation (9 credit units)

Persuasive Communication (9 credit units)

Technical and Professional Writing (9 credit units)

Specialized certificates in technological innovation

Technical Innovation (26 credit units)

New Product Marketing (13 credit units)

Leading Innovative Teams (13 credit units)

ABOUT CERTIFICATES

"I grew up on my family farm outside of Birch Hills, SK. My family was one of the many that came to Saskatchewan on Red River Carts and I identify as being Anishinaabe and Swampy Cree Métis.

I chose to become a student ambassador to try and help others. Not everyone always feels like they fit in and providing some camaraderie among students is extremely critical to success."

Patrick Nelson, fourth-year civil engineering student

Indigenous Engineering: TĀWAW! WELCOME!

We honour and share Indigenous ways of knowing as an integral part of teaching, learning and research at USask Engineering.

We provide:

- **Inclusion** of Indigenous history, culture, and ways of knowing for all students, staff and faculty in the college of engineering;
- **Holistic** support for Indigenous engineering students;
- **Engagement** with Indigenous communities to help solve practical needs and to provide engineering outreach.

Indigenous Student Experience

- Our Indigenous student peers and ambassadors provide peer and academic support to Indigenous engineering students.
- The Indigenous Resource Centre located in room 2C90 of the Engineering Building is a gathering space for students to connect with each other to study, relax, or have a meal together.

Join Community

- Join the USask Chapter of AISES (American Indian Science and Engineering Society) and connect with other Indigenous students at USask who are interested in science and engineering.
- Connect with the Gordon Oakes Red Bear Student Centre for support.

Indigenous Student Achievement Pathways (ISAP)

If you need to brush up on your math or science first, join ISAP in the College of Arts and Science. This opportunity can open up a path for you to enter Engineering in your second year of studies.

INDIGENOUS ENGINEERING

Left: Engineering students help raise the college's tipi

BUILD YOUR SKILLS BEYOND *the classroom*

Our student groups are well-established and successful.

They allow you to develop leadership and team-building skills, while creating lifelong friendships.

There are student groups for the engineering majors in our college and the very active Saskatoon Engineering Students' Society (SESS), or you may want to join one of these design groups!

- **Huskie Formula Racing (FSAE)**
- **Steel Bridge Design Team**
- **USask Sled Dogs Quarter-Scale Tractor Team**
- **USask Space Design Team (USST)**

Left: our design teams in action

STUDENT GROUPS

Chart your COURSE

Experience different engineering majors before you choose

In our RE-ENGINEERED first-year program, you will be introduced by the end of Term One to each of the eight engineering disciplines (or majors) offered at USask Engineering.

You will also get to choose five of the eight disciplines to explore in greater detail during our Discipline Experience week - giving you the opportunity to compare and contrast disciplines and learn about the variety of work that engineers do!

Before the end of Term Two, you will choose your major. Your school year will wrap up with a Discipline Bridge Course that gets you excited about your chosen major and prepares you for your second year. And at the beginning of your second year, you will be welcomed to your discipline at our annual Hard Hat Ceremony.

Bachelor of Science in Engineering: Eight majors

You can specialize your major with degree options and focus areas. Dual degree options are also available

- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Engineering Physics
- Environmental Engineering
- Geological Engineering
- Mechanical Engineering

The College of Engineering 2021 Hard Hat Ceremony

CIVIL ENGINEERING

Civil engineers design, construct and maintain structures like roads, highways, bridges, and airports. They help create safe and sustainable small- and large-scale water resource projects such as dams, canals, and pipelines.

Careers

- Designing physical structures such as hospitals, plenums at mine sites, and hockey arenas
- Developing safe transportation systems including roads, highways, railways, and bridges
- Protecting people and nature through the the building of reservoirs, dams, canals, and land reclamation systems

CHEMICAL ENGINEERING

Chemical engineers—sometimes known as process engineers—design, implement and improve technology to make our lives more comfortable and safe, while minimizing the effect that we have on the environment. They take raw materials, living cells, chemicals, microorganisms or other energy sources to create useful products.

Specialized options available in bioprocessing, mineral processing, and petroleum.

Careers

- Developing new materials to make items like make-up or pharmaceuticals
- Devising innovative fuel and biological fuel cells
- Solving environmental and pollution problems by designing clean energy systems
- Devising technologies to extract and refine metals and minerals
- Improving food, beverage and drug processing
- Developing enhanced oil recovery systems and carbon-capture processes

COMPUTER ENGINEERING

Computer engineering is the design, development and integration of computer programs and technology into devices and systems that improve how we interact with our world every day – computer technology is built into almost every new product. Computer engineering graduates design smart devices such as cellular phones, GPS navigators, video entertainment systems, medical imaging, monitoring devices and much more.

Specialized options available in digital systems; digital signal processing & applications; software. Dual degree option also available: Computer Engineering (B.E.) with Computer Science. (B.Sc.).

Careers

- Creating high-tech products like cell phones or security systems
- Developing satellite-based communication systems, wireless networks and devices that comprise the Internet
- Designing robotic equipment to automate agriculture, healthcare, mining, energy, transportation, and more

ELECTRICAL ENGINEERING

Electrical engineering is the design and management of power systems, communication networks and the electronic products that are transforming our way of life. Electrical engineers also design systems and networks that will deliver services such as internet, text, voice and video information around the globe.

Specialized options available in power & energy; digital signal processing & applications; sensors, circuits & devices; autonomous mobile robotics. Dual degree option also available: Electrical Engineering (B.E.) with Computer Science (B.Sc.).

Careers

- Designing powertrain technology and control systems for vehicles
- Building instruments to be used in agriculture, medicine, manufacturing and more
- Developing green energy technologies such as solar panels and wind turbines

ENGINEERING PHYSICS

Engineering physics is a bridge between pure and applied science, using fundamental concepts in today's rapidly changing and highly technical engineering environment. This program enriches you with analytical skills in mathematics and scientific reasoning, as well as technical skills in the design, construction and operation of systems including nanotechnology, space instrumentation, particle accelerators and more.

Dual degree options available: Engineering Physics (B.E.) with Computer Science (B.Sc.) or Engineering Physics (B.E.) with Mathematics (B.Sc.).

Careers

- Developing modern sensors for satellites that measure the earth and the atmosphere
- Designing and testing advanced medical imaging and radiation detection equipment
- Creating electromagnetic systems, technologies, and components such as loudspeaker electromagnets, MRI's, and much more

ENVIRONMENTAL ENGINEERING

Environmental engineering is the application of science and engineering principles to protect and improve public health and the environment. Learn about water treatment, water and air pollution control, land protection and reclamation, industrial and hazardous waste containment and treatment, and municipal solid waste management, including the recycling of materials and energy recovery.

Careers

- Developing waste management and land reclamation methods
- Designing and testing systems to ensure we leave our world and natural surroundings as we found them before a project begins - like reclaiming mining and oil and gas sites
- Working in agriculture to design and improve systems that protect our food sources, animals and the environment

GEOLOGICAL ENGINEERING

Geological engineering connects the worlds of nature and engineering. It applies engineering principles to the natural materials and fluids found in the earth. Geological engineers work to find and develop the resources that society needs for its survival and to discover how to sustainably dispose of waste.

Specialized option available in mining.

Careers

- Conducting site investigations to determine the geological and geotechnical characteristics of mines
- Ensuring that extractive operations are designed and implemented in a way that is safe, sustainable, and minimizes impact on the environment
- Evaluating stability of the land and design structures to withstand natural forces
- Overseeing large projects like rock excavation, pressure grouting, stability of slopes, and fills
- Leveraging nature and its natural properties to build systems to improve our world

MECHANICAL ENGINEERING

Design, develop, build and test everything from engines, to power systems, to medical devices to mining equipment. Essentially, if it moves, a mechanical engineer was likely involved.

Specialized option available in mining.

Careers

- Designing and manufacturing vehicles, from automobiles to spacecraft
- Building advanced renewable energy systems like wind turbines and solar collectors
- Helping people by designing biomedical devices such as artificial joints, tissue, and bones

SCHOLARSHIPS & BURSARIES

In 2022-2023, there were more than 800 awards available for undergraduate students in USask Engineering, with a total value of over $2 million!

Guaranteed Entrance Scholarships

As a USask Engineering student, you will be automatically considered for a Guaranteed Entrance Scholarship of **up to $3,000** when you apply for admission. These scholarships recognize academic achievements and are awarded based on admission average.

Best and Brightest

UP TO $40,000
Apply for admission by: DEC. 1 • Apply for awards by: DEC. 15

Best and Brightest Entrance Scholarships include USask's highest valued, renewable entrance scholarships and are awarded based on academics, leadership and contributions to school and community life. *These scholarships require the submission of a separate awards application after you apply for admission*.

Competitive Engineering Entrance Awards

Over 100 awards valued UP TO $11,000
Apply for admission by: FEB. 15 • Apply for awards by: MARCH 1

Applicants can be considered based on academic achievement, financial need and/or contributions to school and community life, and some awards recognize particular backgrounds, acknowledge contributions to certain clubs and/or reward achievement in music and athletics. *All entering students are encouraged to apply*.

EXPLORE AWARDS

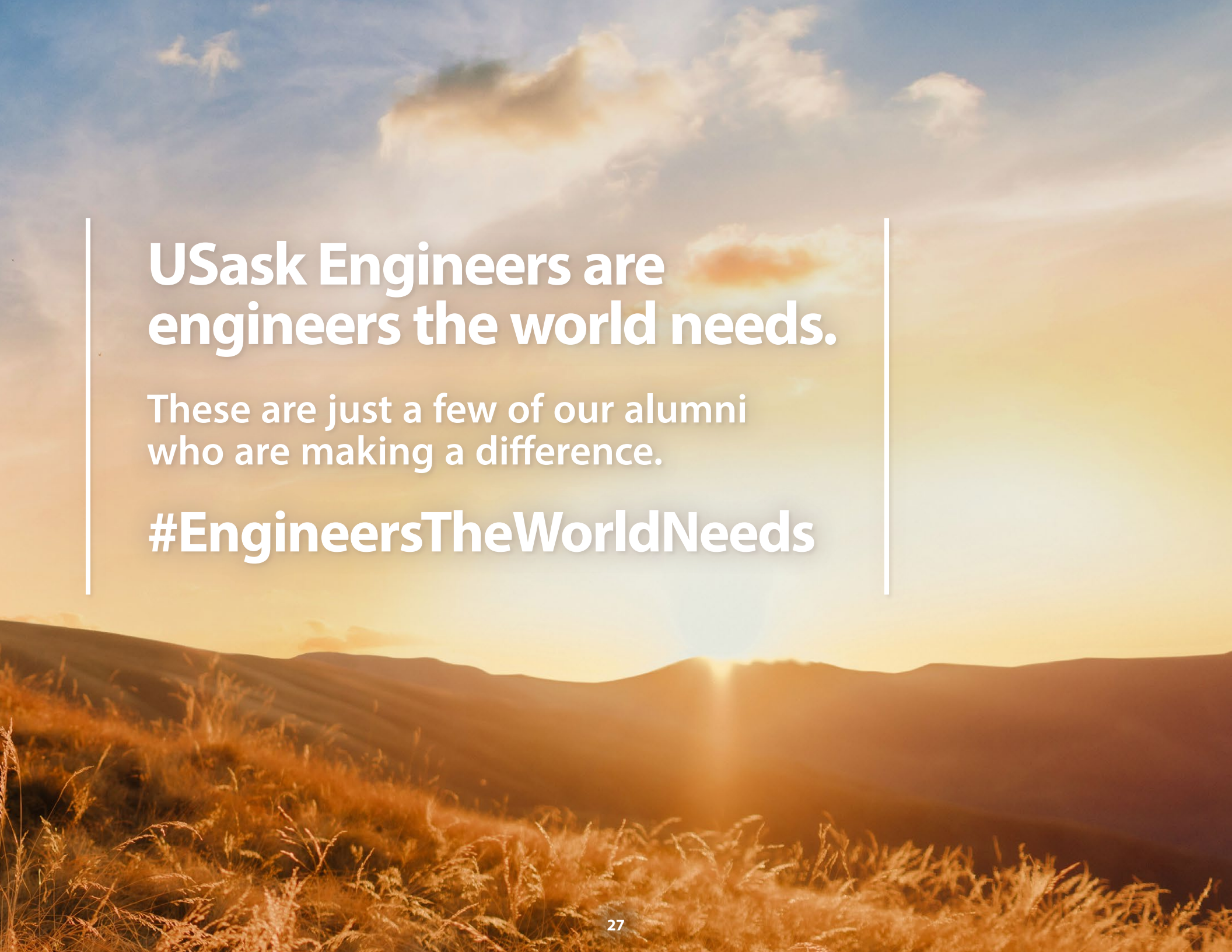
TUITION & FEES

The average cost of undergraduate engineering tuition and fees in 2023-24 is $12,000.

The student fees portion covers services like health and dental insurance, use of athletic facilities on campus, a bus pass for the city's transit system, and more.

TUITION & FEES


I am an
ENGINEER



USask Engineers are engineers the world needs.

These are just a few of our alumni who are making a difference.

#EngineersTheWorldNeeds

INNOVATOR

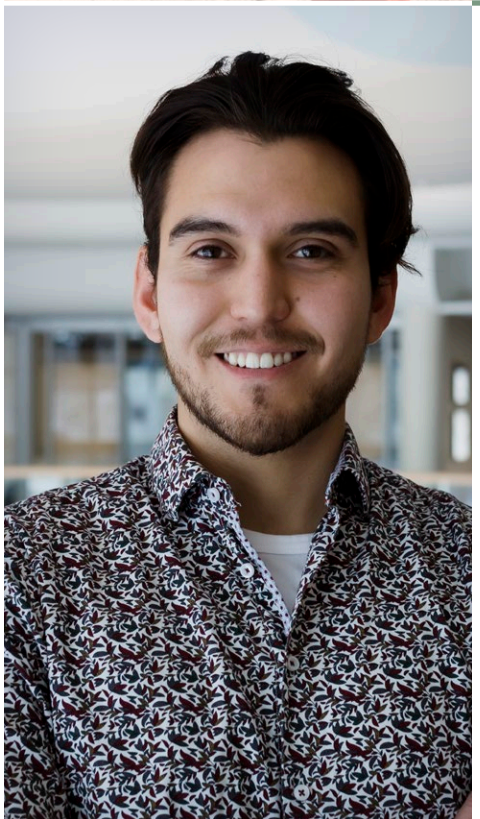
Lance Pitka (BE ’16, MSc ’18, Electrical) is the co-founder of tech firm Rivercity Innovations (RCI). Its mission is to find innovative solutions to energy concerns and issues around the world.

EXPLORER

Grad **Doug Campbell (BE ’08, Mechanical)** wants to be ready for Canada’s next call for astronauts. Campbell, who also holds two Master’s degrees in biomedical engineering, graduated from a two-year private program specializing in training for space and deep sea exploration.

CREATOR

Meet **Tara Reichert (BE ’03, Civil)**, who combines art and engineering as a civil engineer. Tara oversaw construction of a 20-storey condominium building at Saskatoon’s River Landing development. She has since established Levity Engineering and Consulting.



DEFENDER

The opportunity to work outdoors, seeking to solve problems that are causing damage to the biosphere spurred **Harrison Bull (BE ‘17, Chemical, MSc ‘21, Civil)** to pursue a master’s degree in civil engineering. Originally from the George Gordon First Nation, Harrison is now researching water treatment and environmental remediation.

ENGINEERS

are creative problem solvers.

They are in demand and are working every day to make our world a better place.

Job opportunities in Saskatchewan: Job prospects are rated "very good" for engineers of all majors.*

Above-average salaries: In Saskatchewan, the average engineering salary in 2023 was $114,143.+ The highest-paying discipline in Saskatchewan is Geological/ Mining/ Petroleum engineering with an average wage of $118,500.

Engineers in demand: The Government of Canada trend analysis on jobs is predicting a continued shortage of Computer Engineers, Electrical Engineers, and Civil Engineers lasting thorough 2031.**

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* *Sources: Government of Saskatchewan Job Outlook and Government of Canada Canadian Occupational Projection System*

\+ *Source: 2023 Salary Survey: Association of Professional Engineers and Geoscientists of Saskatchewan*

** *Source: Government of Canada Job Bank Trend Analysis*

APPLY

Required high school classes

- Chemistry
- Physics
- Pre-Calculus

NOTE: a minimum grade of 70% is required in each of these courses

Required academic average

Minimum admission average: 75%

Applications are considered up until the deadline. Admission is offered on an ongoing basis until all seats are filled.

Application deadline

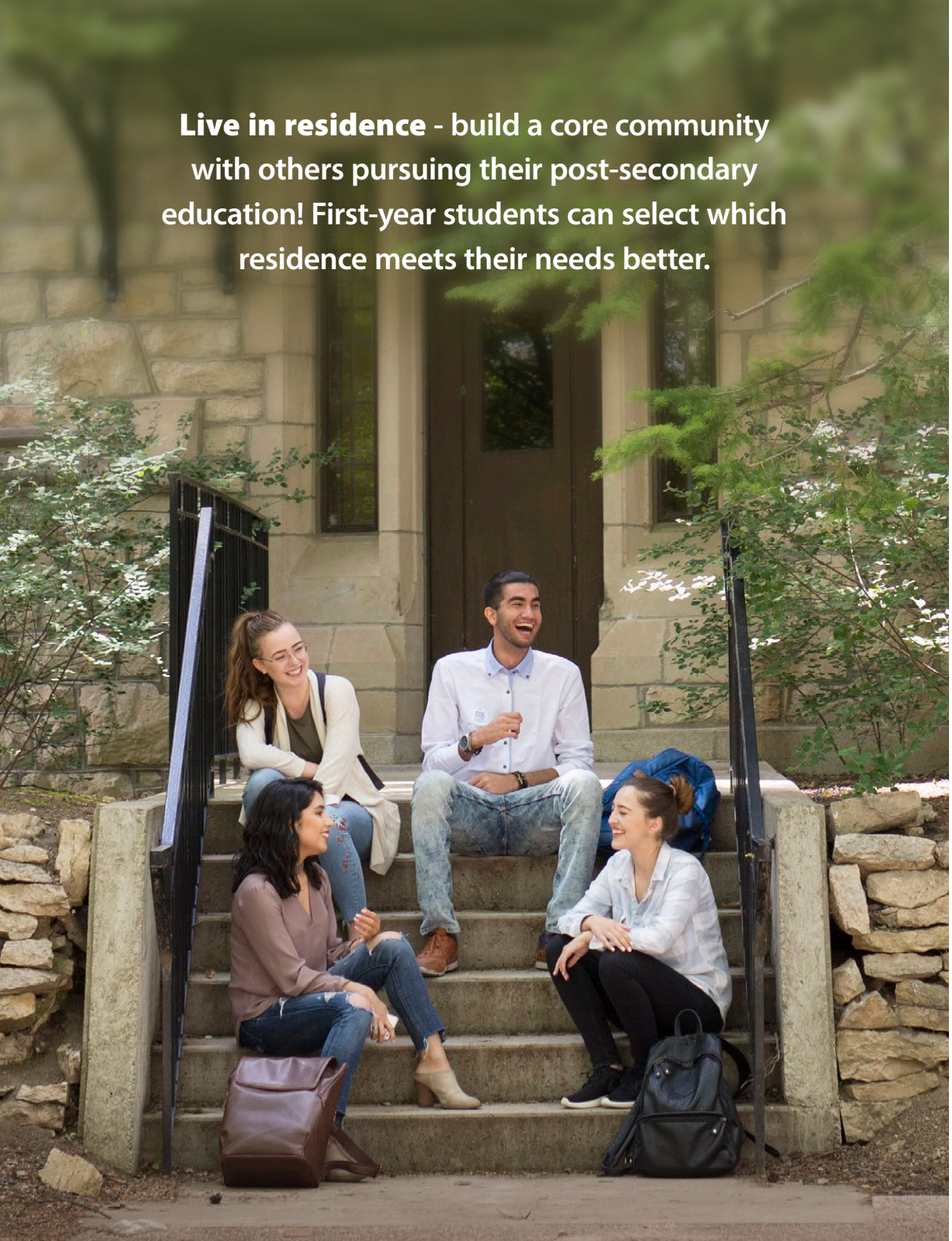
Deadline to apply for admission for the 2024 Fall Term: **May 1, 2024.**

Questions?

Email engineer.recruit@usask.ca

HOW TO APPLY

ADMISSION AVERAGES



RESIDENCE

Voyageur Place

Located at the heart of the USask campus, Voyageur Place is made up of four halls that are all connected by tunnels and skywalks to other buildings on campus, a popular feature during the winter. Voyageur Place buildings offer traditional, dormitory-style, single and double units and are very popular with first-year students.

Features:

- Unlimited meal plan
- Fully furnished
- Utilities, internet, laundry, storage areas
- Games rooms, study rooms, lounges with TVs
- Co-ed, male-only, and female-only halls
- Parking available for a fee

College Quarter

At College Quarter, students live together in a lively, multi-cultural environment in fully furnished two-, three- and four-bedroom units. You are only a short walk from academic and student services buildings on campus, plus you are part of an engaged student community with a friendly, inclusive atmosphere. College Quarter suites are bright and modern, as are the lounges and study spaces, which offer beautiful views of the surrounding area.

Features:

- Partial meal plan
- Fully furnished with kitchenette
- Utilities, internet, laundry
- Lounges and study area
- Parking available for a fee

EXPLORE RESIDENCES

Engineers the WORLD NEEDS

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Engineering.usask.ca

@usask_engineering

@usaskengineering

Email: engineer.recruit@usask.ca

BE WHAT THE WORLD NEEDS

UNIVERSITY OF SASKATCHEWAN
College of Engineering
ENGINEERING.USASK.CA

USask is located on Treaty 6 Territory and the Homeland of the Métis