ENGINEERING
INTERESTED IN ENGINEERING?

Engineering has more impact on our day-to-day lives than any other profession. Using creativity and collaboration, engineers and their teams solve global problems, such as providing clean water to communities, stewarding natural resources and even improving the ease of your commute to school. Engineering gives you the chance to make a difference in the world in whichever area you are most passionate about.

Why engineering at USask?

The College of Engineering at the University of Saskatchewan (USask) is known for graduating students who are not only technically competent, but who are also excellent problem solvers and able to work as part of effective teams.

As an engineering student at USask, you will have the opportunity to enhance your degree with one of several specializations, such as mining, petroleum or biochemical. You can also earn a Certificate in Professional Communication or a Technological Innovation Certificate in conjunction with your engineering degree.

As a student here, you will find a tight-knit community of friends and colleagues who will stay with you for the rest of your life and who will push you to improve. Our students go on to be entrepreneurs, olympians and the CEOs of companies—they excel not only in the classroom, but also in the field and in industry.
Our students

Engineering students come from many different backgrounds, but what they have in common is their spirit of engagement and community pride. Many of our students are volunteers, mentors and leaders in both on- and off-campus organizations, and we work hard to provide the support students need for success in both academics and extracurricular pursuits.
Chemical Engineering
Chemical engineers—frequently known as process engineers—design, implement and improve technology to make life more comfortable and safer, and mitigate environmental problems. Chemical engineers receive training in fundamental engineering sciences such as controls and thermodynamics in mass, heat and momentum transfer, and chemical and biochemical reactor design. They are involved in many diverse industries. Chemical engineers are responsible for the design, operation and managerial aspects of processes such as the production of biofuels and other biomaterials, pharmaceuticals, food, bioactive chemicals, fertilizers, acids, plastics, fragrances, nutraceuticals, paints, gasoline and vaccines. Bioremediation of contaminated sites, treatment of wastewaters and air pollution control are other areas in which chemical engineers play a critical role.

Civil Engineering
Civil engineering deals with much of the infrastructure that is part of an urban society, including the buildings in which we live and work, roads and highways, tunnels, water and wastewater treatment, as well as protection against flooding. Civil engineers also design stable building foundations, bridges, dams, landfill sites and waterways. The civil engineer is involved with aspects of both the development of new works and, in an increasingly significant way, the maintenance and preservation of existing works.

Computer Engineering
Computer engineering is the integration of electronic hardware and computer software into devices and systems that improve our lives. Our graduates enter a rapidly growing field that produces cell phones, GPS navigators, entertainment systems, medical imaging devices and smart devices of all kinds. Be a part of developing the interconnected world where computing is everywhere.

Electrical Engineering
Electrical engineering is the design and development of energy systems, communications networks and the many electronic products that are transforming our way of life. Learn about renewable energy, communications, digital signal processing, nanotechnology and photonics. Prepare for a career designing reliable and clean power systems, internet and cell phone networks, medical devices for diagnostics and therapy, autonomous monitors that warn of dangers and immersive systems for entertainment and education. Electrical engineers design the future.

OPTIONS
You can further enhance your education by taking additional specialized training in:

MINING
This option is available in our mechanical and geological engineering programs.

PETROLEUM, MINERAL PROCESSING AND BIOCHEMICAL
These options are available in our chemical engineering program.
Engineering Physics
Engineering physics is a bridge between pure and applied science in which students hone their analytical and technical skills. Students in this field study both engineering and physics in great depth while building the critical mathematical skills that are needed to quantify abstract physics concepts. You will learn to excel with analytical and numerical analysis techniques, gain hands-on experience with experimental methods and learn to apply statistical methods in this highly technical field. Engineering physicists come with diverse talents and strong adaptability to tackle any project.

Environmental Engineering
Environmental engineering is the application of science and engineering principles for the protection and improvement of public health and the environment, including air, water and land resources. Some environmental engineers work in 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. They are tasked with finding solutions to the environmental challenges associated with urbanization, resource development, industrial production and many other aspects of our modern technological society.

Geological Engineering
Geological engineering is the application of engineering principles to the natural materials and fluids found in the earth, including rocks, soils, groundwater, petroleum and natural gas. Geological engineers are trained to characterize and predict the behaviour of natural materials and fluids. They work to find and develop the resources that society needs for its survival (energy, mineral sources) and in the disposal of society's wastes (mine tailings, municipal and industrial waste) in a manner that results in the least possible disturbance to the environment.

Mechanical Engineering
Mechanical engineering is the design, production, and use of mechanical systems that control and transform energy. Mechanical engineers are trained in statics, dynamics and vibrations, heat transfer and fluid mechanics, solid mechanics and biomechanics, robotics, controls and mechatronics, materials science, analysis and synthesis of mechanical systems, and manufacturing. This extensive training prepares mechanical engineering graduates to work in a wide variety of industries around the world.

Technological Innovation
Learn business fundamentals and processes to design and commercialize technologically-innovative solutions.

Professional Communication
Learn how to negotiate the political, rhetorical, ethical and interpersonal challenges of communicating in a professional environment.
Most engineering graduates find employment as professional engineers, but there are many fields in which the skills that you will develop while earning your engineering degree will prove valuable and are highly sought after by employers.
Enhance your education and kick start your career by completing a paid internship as part of your degree program. You will have the opportunity to complete an 8, 12 or 16-month internship between your third and fourth year of studies. You will earn a competitive salary and gain valuable work experience. You may apply up to 12 months of your work experience towards becoming a licensed professional engineer.

On average, interns placed in Saskatchewan earn $4,000 per month.
Hands-on learning
Engineering at USask involves hands-on education. You will use state-of-the-art technology in the lab to learn, experiment and test your ideas. From our wind tunnel to our anechoic chamber, our facilities can help make textbook concepts tangible.

Education in our college is about more than sending you home with challenging assignments. You can work with students from your classes and other programs to get the most from your education, whether working on homework, building a space elevator, racecar, remote control plane or art display, or finishing a design project.

The Engineering Student Centre works very hard to support students academically through advising and administering facilitated study sessions every week.

Capstone Design Project
Every student will complete several design projects throughout their degree, but perhaps the most exciting is our fourth-year Capstone Design Projects. The Capstone Design Project allows students to apply top-down design principles to a year-long project, starting with a basic description of the product or system and culminating in a presentation of a final working design. Students gain first-hand experience in the application of a formal design process while earning credit toward their degrees.

Getting involved
Our engineering students have a reputation for helping out and supporting our local community, the world’s developing nations and everywhere in between.

Our students have accomplished amazing things in the areas of space design, mining competitions and agricultural design, and have been involved in projects where they aim to make a difference in developing nations through providing access to clean water, food and sustainable energies.

We are very proud of how active and engaged our student body is, which shines through in the diversity and activity of our student groups. Whether you are interested in refining your creativity skills by collaborating with art students, developing a product to help someone with accessibility needs, traveling across the world to help build a well in Africa or designing/building a race car or airplane, we have a student group for you!
The Indigenous Peoples Initiatives Community (IPIC) Engineering Access Program offers new pathways to help you transition to being an engineering student. The program provides proactive supports to Indigenous students that increase access to engineering through new pathways, improve the transition to being an engineering student, and create a community for student success through engagement events and peer support.

Pathways to Engineering
If you do not yet have all of the required classes to apply to engineering, you can register for a year of academic upgrading through the College of Arts and Science on our main campus in Saskatoon or at Northlands College in La Ronge, Creighton, Île-à-la-Crosse or Buffalo Narrows.

Summer Bridging Program
Once admitted to the College of Engineering, you can participate in the Summer Bridging Program to get used to campus life, learn about career options in engineering and learn academic preparation skills that will help you when you begin your degree.

Student Success Program
The Student Success Program provides social, academic, financial and employment supports through Indigenous Student Ambassadors, the Student Success Fund, and the Indigenous Peoples Industry Partnership Program (IPIPP). IPIPP facilitates partnerships between companies and Indigenous engineering students. Students that participate in IPIPP receive a tuition incentive, valuable summer work experience and important industry connections that lay the groundwork for excellent job opportunities after graduation.

Indigenous Resource Centre
The Indigenous Resource Centre is open everyone in the College of Engineering to facilitate dialogue and learn more about Indigenous Peoples culture, history and ways of knowing. The centre also provides opportunities for Indigenous students to find peer support and a sense of community in the college.

For more information, please visit engineering.usask.ca/indigenous.php.
Engineering students are required to complete a common first year of general engineering courses and electives before choosing a specialization.

Your first-year schedule
Here’s what a typical first-year schedule will look like:

TERM 1
- Chemistry 114.3 General Chemistry for Engineers
- Commerce 102.3 Introduction to Business Management
- General Engineering 101.1 Introduction to the Engineering Profession
- General Engineering 111.3 Engineering Problem Solving
- General Engineering 124.3 Engineering Mechanics I
- Mathematics 123.3 Calculus I for Engineers

TERM 1 OR TERM 2
- Junior humanities/social science elective

TERM 2
- General Engineering 121.3 Engineering Design
- General Engineering 125.3 Engineering Mechanics II
- Mathematics 124.3 Calculus II for Engineers
- Physics 155.3 Introduction to Electricity and Magnetism
- Natural science elective (one of):
  - Biology 120.3 The Nature of Life
  - Chemistry 115.3 General Chemistry II Chemical Processes
  - Geology 121.3 Earth Processes
  - Physics 125.3 Physics and Technology

Academic and personal support
In your first year and throughout your time in the college, we work hard to provide you with the support you need to be successful. You can take part in facilitated study sessions, visit one of our help desks, find a tutor through one of our tutor lists and receive academic advising and referrals to a variety of on-campus services and support through the Engineering Student Centre.
Admission requirements
Find up-to-date and province-specific admission requirements online at admissions.usask.ca.

To gain admission to the College of Engineering, you will need the following:

- complete high school-level standing
- a competitive five-subject admission average
- the following Grade 12-level subjects or equivalents:
  - pre-calculus mathematics*
  - chemistry*
  - physics*
- English language proficiency

*A minimum of 70% is required in each of these prerequisite courses.

Choosing a program
Regardless of your program of interest, you will take a common set of courses in your first year.

At the end of your first year, you will select your preferred programs in which you plan to pursue a degree. You will be asked to rank your top three program choices (from mechanical, civil, environmental, engineering physics, geological, chemical, electrical and computer), and we will consider you for your preferred programs based on a competitive average calculated using your first-year engineering core courses.

Your junior humanities/social science elective, science elective or commerce class will not be used in the program admission average calculation.