AMANENGINEER

#engineerstheworldneeds
WHO ARE ENGINEERS?
The answers might surprise you.
PROTECTORS

BE WHAT THE WORLD NEEDS
DIFFERENCE MAKERS

BE WHAT THE WORLD NEEDS
SEEKERS

BE WHAT THE WORLD NEEDS
INNOVATORS

BE WHAT THE WORLD NEEDS
CREATORS
BE WHAT THE WORLD NEEDS
DESIGNERS

BE WHAT THE WORLD NEEDS
THINKERS
BE WHAT THE WORLD NEEDS
And our world needs engineers.

FOR YOU

And our world needs engineers.

Engineers are creative problem-solvers.

They use science, technology and math to analyze and solve local and global problems: providing clean water to cities, making computer chips more reliable or bio-engineering artificial organs and tissues.

Engineers enjoy above-average employability and salaries. Many of our alumni have leveraged their engineering education, experience and technical knowledge to become doctors, lawyers, business leaders and more.
THINK YOU'RE NOT THE ENGINEERING TYPE?
There's a place in engineering for everyone.

Engineering is not just for people who excel at math and science. You'll also find students who are interested in: entrepreneurship, music, the arts, social justice, technological innovation, medicine, and more!

Engineers are:
- Curious
- Creative
- Leaders
- Problem Solvers
- Entrepreneurs
- Team Players
- Adventure Seekers
- Innovators

Check out how we've RE-ENGINEERED our program.

BE WHAT THE WORLD NEEDS
We've reimagined first-year engineering to create our ground-breaking new program.
WHAT IS RE-ENGINEERED?

- A first-year program that will be the most effective in Canada
- Classes will be shorter and more intensive
- More classes in engineering design, computer programming and the natural sciences, with more hands-on learning
- You will be graded on your grasp of foundational material and problem-solving skills, rather than high-stakes exams and assignments
- Marks will reflect your most recent work, rather than early attempts
- By the end of your first year you will be better prepared for upper-years classes and ultimately your engineering career

WHY IS USASK CHANGING HOW IT TEACHES FIRST-YEAR ENGINEERING?

- Engineers need broader, more diverse skills but engineering education hasn’t fundamentally changed too much in 100 years or longer, says Associate Professor Sean Maw, one of the leaders of the team transforming USask Engineering’s first-year program.
- The new curriculum makes your mental and physical health a priority to help you succeed
- The design of RE-ENGINEERED is based on extensive consultation with faculty and students, as well as research on effective instruction, principles for teaching and learning in higher education, and practices that support student success.
How are the courses changing in re-engineered?

- Because courses are shorter, more material will be covered in first-year, including:
  - Introduction to the profession, including professionalism, ethics, and some health and safety training
  - Calculus; linear algebra … applied to engineering problems!
  - Short courses in chemistry, biology, physics and geology and how they relate to engineering
  - Communication (written, oral, interpersonal, multimedia)
  - Indigenous cultural foundation
  - Design; drawing and sketching; CAD
  - Computer programming (Python AND Matlab)
  - Electrical circuits; mechanics
  - One-day labs introducing students to each of the engineering disciplines
- As first year concludes, you will choose your discipline and will finish the spring term with bridge courses into that chosen major, so you will be better prepared as second-year starts.
- After first-year, you will be more employable, due to your experience in MatLab, computer programming and CAD (computer-aided design).
- You will also have a better idea about what engineering entails in the real-world, so you will know sooner whether engineering is the best choice for you.
FOR YOUR LEARNING
Instead of having five or six courses that run the length of the semester, RE-ENGINEERED classes will vary in length and intensity, so more material can be covered in one semester. Material will be sequenced so that you are able to use knowledge from one course and immediately apply it in another.

FOR YOUR SUCCESS
You will be tested on modules of content throughout your courses using competency-based assessment. The idea is to ensure you and your classmates have a stronger foundation in the basics that you’ll need for the rest of your degree. For instance, you’ll need to achieve a mark of at least 70% on material involving facts, concepts, basic computations, and procedural steps, as well as basic integrative problems in the course. There will be no minimum standard for the very advanced material. If you don’t do well on an early test of a learning outcome, you will get a second or third chance to do better.

FOR SCHOOL-LIFE BALANCE
Classes, tests and assignments are coordinated between first-year professors so you won’t be overloaded one week and have nothing due the next. You and your classmates will have a consistent schedule from week to week, with a common lunch hour that makes it easier to schedule community-building extra-curriculars and social events.

FOR EMPLOYABILITY
After first-year, you will be more employable, due to your experiences in MatLab, computer programming and CAD (computer-aided design). With hands-on experience in your classes, you will also have a better idea about what engineering entails in the real-world.
REDESIGNED for you

HANDS ON
The final exam periods in December and April will be used for discipline-specific, hands-on learning.

INNOVATIVE
RE-ENGINEERED is the first engineering program of its kind in Canada. USask is delivering what the world needs for engineering education.

NO FINALS
In RE-ENGINEERED there are no final exams. You’re graded throughout the school year and the final exam period is used to give you a closer look at the engineering disciplines.

RESEARCH EXPERIENCE
You’ll get access to research experience in your first year. This will help you to learn about potential career directions such as research and development or academia.

TEAM FOCUSED
Your learning in RE-ENGINEERED is teamwork focused, an important skill in today’s workplace. In your first year, you and your classmates will learn how to support and mentor each other.

SUCCESS BASED
Classes are shorter and more intensive, covering a broader range of material, with more hands-on learning. Rather than high-stakes exams and assignments, you will be graded on your grasp of foundational material and problem-solving skills, with marks reflecting your most recent work, rather than early attempts. By the end of first year, you will be better prepared for upper-years classes and ultimately your engineering career.

CAREER READY
After first year, engineering students will be more employable, due to their experiences in MatLab, computer programming and computer-aided design.
Experience RE-ENGINEERED, our brand-new first-year program created to help you succeed.

Be part of a welcoming community where you are noticed and supported.

Get second-to-none hands-on experience. Our students use equipment and software first-hand, instead of just watching demonstrations.

Join one of our 21 student design groups, professional associations and discipline clubs.

You will be joining the 'Thorough Family,' a rich and vibrant group of alumni, faculty, staff and members of our engineering community.

WHY USASK ENGINEERING?

THRIVE. BELONG. LEARN.
This optional, comprehensive work-integrated learning program connects students and employers. With paid work-term lengths between four and 20 months and varied start dates, you can gain valuable engineering work experience prior to graduation. Participating in the co-op program may extend a student's degree completion time by a minimum of one year.

As an engineering student, you will have direct access to the Ron & Jane Graham School of Professional Development in the college, which offers training in both communication (Certificate in Professional Communication) and engineering entrepreneurship (Technological Innovation Certificate).

You can further enhance your education through degree options - a prescribed set of courses that provide a concentration of specialized training in one particular field of study. Options currently offered include:
- Chemical Engineering
  - Biochemical Option
  - Mineral Processing Option
  - Petroleum Option
- Geological Engineering Mining Option
- Mechanical Engineering Mining Option

Before you begin your first year of engineering, you'll be able to participate in online Summer Top Up courses. They will help you identify and address any gaps from your high school classes – including Chemistry, Math and Physics – before starting first-year.

If you do have any gaps, you will be provided with materials to help you fill in your knowledge and skills in those areas.

The Engineering Student Centre - also known as the ESC - is the office where you can meet with the college’s academic advisors, who provide guidance and support to help you reach your academic goals.

Academic advising appointments are currently booked and held online.
EXPERIENCE & PICK YOUR MAJOR IN FIRST YEAR

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

In these intensive, multi-hour classes, you will compare and contrast the various disciplines and do a hands-on learning activity to develop a skill that can be used in any branch of engineering. You will learn about the variety of work that engineers do!

Before the end of Term Two, you will choose your discipline, or 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.

8 ENGINEERING MAJORS

Chemical Engineering
Civil Engineering
Computer Engineering
Electrical Engineering
Biochemical option
Mineral processing option
Petroleum option
Engineering Physics
Environmental Engineering
Geological Engineering
Mechanical Engineering

5 DEGREE OPTIONS

Geochemical option
Mineral processing option
Petroleum option
Geological engineering mining option
Mechanical engineering mining option

2 CERTIFICATES

Certificate in Professional Communication (CPC)
Certificate in Technological Innovation (TIC)
Within the College of Engineering, the Indigenous Peoples Initiatives Community provides meaningful access to engineering for Indigenous Peoples, while building and maintaining respectful relationships with Indigenous communities. Throughout the year, all engineering students can:

- Study in the Indigenous Resource Room on the 2nd floor of Engineering
- Learn Cree by participating in our Wednesday Cree class - happening on Zoom and recorded so you can go back and review!
- Join an elder session for one-on-one counselling or cultural knowledge.
- Participate in monthly events like Day in the Life with an Indigenous Engineer, Back-to-School lunches and more!
- Before students start their studies in engineering, they can participate in the Bridging Program and meet other Indigenous students. Students will learn about what a day in the life of an engineering student looks like and what academic, financial, personal and professional supports are available.

Learn more about Indigenous Engineering [HERE](#)
WE ARE
USASK ENGINEERS

From the halls of the College of Engineering and out into the world, our engineering alumni have a variety of careers and life experiences. They are some of the most diverse people you will ever meet - but one thing is consistent - they are the engineers our world needs!

Our alumni are changing and re-defining our world, such as:

- Brad Polischuk, electrical engineering alum, who designed medical imaging equipment that made a transformational impact on breast cancer detection.
- Chemical engineering alum Callie Kennedy is making a big difference in her community with her non-profit, Life Worth Living, dedicated to spreading awareness and decreasing the stigma surrounding mental health.
- Alumni like Mike Marsh, Ken From, Myron Stadnyk and many, many more are CEOs of companies like SaskPower, SaskEnergy and ARC Resources.
- Chemical engineering alumni Joe and Lorrie Deutscher have traveled the world with their degrees: from Saskatchewan to Alberta, Texas, the Netherlands, Saudi Arabia and more.
- Engineering physics alum Mark Matthews landed his dream job as a Software Engineer with DreamWorks, working on some of the world’s favourite movies, like How to Train your Dragon, Kung-Fu Panda and more.
- Mechanical engineering alum Angie Bugg was named to Canada’s 150 citizen project for being a passionate advocate for environmental stewardship and youth engagement.

Sometimes you have to know where you’ve come from to know where you’re going.

Explore the following features on some of our young alumni who are living up to our goal of being engineers the world needs.

BE WHAT THE WORLD NEEDS

TESLA

Nialls Cherak, a mechanical engineering alum, did a co-op work term with Tesla, spurred by his extracurricular involvement with the Huskie Formula Racing Team, a student design group. After being immersed in the world of vehicle design, Nialls is now working for Rivian in Detroit.

MARS

Mechanical engineering grad Doug Campbell is getting ready for Canada’s next call for astronauts. Doug was selected to join a two-year scientist-astronaut training program for the full “Mars experience,” which is a simulated program for space travel to Mars. Learn more about Doug’s mission to Mars, HERE.

TEAM CANADA

Lisa Franks skyrocketed to become a six-time Paralympic gold medal athlete. She’s won medals in the T52 wheelchair sprint events and was a member of Team Canada’s wheelchair basketball team. Lisa is now a mechanical engineer working for Stantec. Read more about Lisa HERE.
GAME OF THRONES
A love for nature inspired chemical engineering alum Harrison Bull to pursue a masters degree in civil engineering. Originally from the George Gordon First Nation, Harrison is now researching water treatment and environmental remediation. Learn more about Harrison's interest in defending nature HERE.

Keara Carter, an engineering physics alum, had the chance of a lifetime to play a part as an extra in the final season of the popular HBO series Game of Thrones. While studying astrophysics in Belfast, Keara got to work on the series and will be moving back to Belfast to start filming the Game of Thrones prequel. Learn more about Keara's adventures HERE.

ENTREPRENEUR
Originally from Hong Kong, Andy Yuen immigrated to Canada in 1996. He later pursued a degree in civil engineering. Today, Andy owns and operates one of Saskatchewan’s favourite restaurants, The Odd Couple, alongside his wife Rachel. Learn more about how Andy has gone from engineer to entrepreneur HERE.

BUILDING ONE OF HER CITY’S TALLEST BUILDINGS
Meet civil engineer Tara Reichert. Tara oversaw the construction of a 20-storey condominium tower and 15-storey hotel on Parcel Y in Saskatoon’s River Landing - the first buildings of their kind in 35 years. Read more about Tara’s adventures in changing the skyline HERE.

HELPING DEFEND NATURE
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MECHANICAL ENGINEERING
Mechanical engineering alum Shaunti Bergen went on to pursue her masters degree at USask. Her thesis focused on researching the use of fire-resistant hydraulic fluid in underground potash mines. Her objective was to help prevent fires and make mines safer for workers. Learn more about how Shaunti leveraged engineering research to keep people safe HERE.

KEEPING PEOPLE SAFE
Gillian Pinder, a mechanical engineering alum, is an all-around engineering rock star. In 2017 she founded GearUp to encourage USask female engineering students to gain new technical skills and build a network of female classmates and professionals. Today, she is designing shoes, apparel and equipment as a Future Team Engineer with Adidas.

ADIDAS
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WHAT IS MECHANICAL ENGINEERING?
Mechanical engineering is one of the most diverse fields of engineering. These engineers design, develop, build and test everything from engines, to power systems, to medical devices to mining equipment. Basically if it moves, a mechanical engineer was likely involved. 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.

CAREERS
Mechanical engineering offers a wide variety of career paths, including opportunities like:
- designing and manufacturing vehicles, from automobiles to spacecraft
- building advanced renewable energy systems like wind turbines and solar collectors
- helping people by designing devices for biomedical applications
- working in all industries of energy like power generation, pipelines and petroleum production
- maximizing the efficiency and energy of our buildings with heating, ventilating, air conditioning
- creating robotic systems to improve our world
- feeding people through a variety of applications in agriculture, mining and more

WHAT IS CIVIL ENGINEERING?
Civil engineering is the design and construction of society’s infrastructure. If you’ve travelled, to your corner store or across the globe, you’ve interacted with something a civil engineer was part of. They design, construct and maintain things like our roads, highways, bridges, and airports; help create safe and sustainable small- and large-scale water resource projects such as dams, canals, and pipelines; and they work to protect and enhance our environment through waste management systems, land reclamation, and water quality protection.

CAREERS
With a degree in civil engineering, your career options include the following:
- designing houses, skyscrapers, hockey arenas, schools and almost any other structure
- helping people travel quickly and safely by designing roads, highways, railways and bridges
- kickstarting projects through consulting
- working in municipal (urban or rural), provincial and federal governments
- construction in both small and large companies - companies like Graham Construction and PCL were founded by USask engineers
- using the environment to help protect people and nature through building reservoirs, dams, canals and land reclamation.
WHAT IS ENVIRONMENTAL ENGINEERING?
Environmental engineering is the application of science and engineering principles to protect and improve public health and the environment, including air, water and land resources. Environmental engineering involves 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. You will also study the environmental impact of proposed infrastructure and resource development projects.

CAREERS
With a degree in environmental engineering possible careers include the following:
- developing waste management and land reclamation methods
- helping a variety of other professions through consulting and project management
- 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 for your community through municipal (both urban and rural), provincial or federal governments
- working in agriculture to design and improve systems that protect our food sources, animals and the environment

WHAT IS 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, 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 and to discover how to dispose our wastes in a manner that has the least possible disturbance to the environment. Geological engineers also work to design and develop stable building foundations, bridges, dams, highways, landfill sites and waterways.

CAREERS
With a degree in geological engineering, you will have many career options:
- travel the world working with mining and petroleum companies
- keep people safe by ensuring we have stable building foundations
- working with provincial or federal governments
- help solve problems as a geological engineering consultant
- oversee large projects like rock excavation, pressure grouting, stability of slopes, fills and more
- leverage nature and its natural properties to build systems to improve our world
WHAT IS 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. An engineering physicist is motivated by the application of science for advancing technology and sustainability.

This program enriches you with analytical skills of mathematics and scientific reasoning, technical skills of design, construction and operation of systems including nanotechnology, space instrumentation, particle accelerators and more. You will develop leadership skills as engineering physicists are called to manage projects involving electrical, mechanical or chemical components and tasks. Engineering physicists tend to be versatile and adaptable to projects as they evolve.

CAREERS
With a degree in engineering physics you have many job possibilities. Here's just a few examples of what a career could include:
- developing modern sensors for satellites that measure the earth and the atmosphere
- designing and testing advanced medical imaging and radiation detection equipment
- working on the next generation of communications by designing wireless devices and fibre optics
- conducting research as a graduate student in cutting edge areas in physics, like spintronics and plasmonics

WHAT IS CHEMICAL ENGINEERING?
Chemical engineers—sometimes known as process engineers—design, implement and improve technology to make life 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. In the eyes of a chemical engineer, almost anything is possible if it involves them looking for ways to improve our world.

CAREERS
With a degree in chemical engineering, you can have an exciting career in many areas, including the following:
- leveraging your creativity to develop new materials to make items like clothing fabric, make-up, pharmaceuticals, paper and more
- devising innovative fuel and biological fuel cells
- solving environmental and pollution problems and designing clean energy systems
- helping keep people healthy by producing pharmaceuticals within the biotechnology sector
- devising technologies to extract and refine metals and minerals
- improving food, beverage and drug processing
- designing and operating petroleum and petrochemical plants
- developing enhanced oil recovery systems and carbon-capture processes
WHAT IS 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 today. Computer engineering graduates design "smart" devices such as cellular phones, GPS navigators, video entertainment systems, medical imaging, monitoring devices and much more! Through this program you can become part of this rapidly growing, leading-edge field.

CAREERS
As a computer engineering alum, you will have a diverse range of careers options. Some of those job opportunities include:
- creating high-tech products like iPhones, digital TVs and security scanners
- developing satellite-based communication systems, wireless networks and devices that comprise the Internet
- designing robotic equipment for everything from medicine to mining
- working for industry-leading companies like Apple, Electronic Arts, RIM and Google
- designing and building international products for companies like Cisco networks while living in Saskatchewan

WHAT IS 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.

The world runs on energy, and electrical energy is a convenient, valuable and important part of the supply. Electrical engineering helps provide reliable, sustainable energy to meet the needs of society for the future. Electrical engineers also design systems and networks that will deliver services such as internet, text, voice and video information around the globe. Your knowledge of power systems can help prevent major power blackouts and protect the environment through the management of new energy sources.

CAREERS
Your career opportunities could include the following:
- creating electronic devices such as 3D TVs, Blu-Ray players, cell phones and iPads
- 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 generators
ADMISSION REQUIREMENTS & DATES

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.

Regardless of which engineering discipline you’re interested in, you will take a common set of courses in your first year.

At the end of your first year, you will select your preferred discipline, or major. You will be asked to rank your top three choices (from mechanical, civil, environmental, engineering physics, geological, chemical, electrical and computer).

We will consider you for your preferred major based on a competitive academic average calculated from your first-year engineering core courses.

Save the following dates in your calendar to be a part of the new USask first-year engineering program that is leading the country in reimagining engineering education:

Application deadline for the 2021 Fall Term (September) is May 1, 2021.

Document deadline is June 1, 2021.
HOW TO APPLY

1 APPLY FOR ADMISSION

Ready to apply? Create an account at APPLY.USASK.CA and fill out the online application for admission.

2 CHECK YOUR APPLICATION STATUS

Log in to monitor your application status at APPLY.USASK.CA. Check when supplemental items have been received or whether additional items are needed, and see when a decision has been made on your application.

3 SUBMIT YOUR SUPPLEMENTAL ITEMS

IF YOU ARE CURRENTLY IN HIGH SCHOOL:

SASKATCHEWAN STUDENTS
  - Request official transcripts to be sent directly to USask by the Ministry of Education:
    - as soon as possible,
    - after January exams 2021 and
    - after June exams 2021.

OUT-OF-PROVINCE STUDENTS
  - Upload a copy of your most up-to-date report card or transcript.
  - When you graduate, arrange to have your final, official transcript mailed or couriered directly to USask by the appropriate authority, such as your provincial Ministry of Education.

IF YOU HAVE EVER TAKEN CLASSES OR COMPLETED A PROGRAM AT ANOTHER COLLEGE OR UNIVERSITY:

Upload a copy of your most recent transcript showing marks for all classes you have completed. Arrange to have a final, official transcript mailed or couriered directly to USask by the institution(s) you attended.

If proof of an English-language proficiency test is required, arrange for English-proficiency test scores to be sent directly to USask by the testing organization.

4 ACCEPT YOUR OFFER

If you receive an offer of admission, accept your offer online to officially become a USask Engineering student.

CONGRATULATIONS!
Share your #USASK moment
ENGINERS THE WORLD NEEDS

BE WHAT THE WORLD NEEDS

BeAnEngineer.usask.ca