RE-ERGENCERED BE WHAT THE WORLD NEEDS

STUDENT HANDBOOK 2023-2024

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STUDENT HANDBOOK

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FIRST-YEAR ENGINEERING HANDBOOK

updated: July 14, 2023

WELCOME TO YOUR RE-ENGINEERED FIRST-YEAR

First-year engineering at the University of Saskatchewan's College of Engineering (USask Engineering) is not like it used to be – it's been RE-ENGINEERED. You won't find another program like it anywhere. We rebuilt our program from the ground up. We started with a blank piece of paper and asked ourselves, "What would we do if we could do anything?" The result is a stronger program that will give you the tools you need to succeed at the college and in your career as a professional engineer.

A Liveable Schedule...

While your day-to-day schedule will be more predictable and more livable, what you do each week in class will be much more varied than in the past. Generally, your courses will not run the whole term. They will be shorter and more thoughtfully sequenced so that you can use skills from one course in another (e.g CAD and design).

A New (Less Stressful) Grading System...

Our first-year program will use competency-based assessment (CBA) for evaluation and grading. The big difference with CBA is that we focus on you successfully becoming competent in various Learning Outcomes (LOs), rather than just passing tests. You'll get at least two to three opportunities to show your competency in each LO, and if you get higher grades on later work, those will replace earlier/lower grades. Research shows students usually find this system fairer and less stressful.

Learn More About What Matters...

The new curriculum will also prepare you better for your first summer jobs in the engineering field. It will include a more diverse group of courses, with more social and environmental impact elements, as well as Indigenous examples of technology and design. It will have better introductions to the various engineering majors (also known as disciplines) and stronger transitions to your chosen majors in your second year. Plus, we'll cover study skills and peer teaching, so you're empowered to help yourselves, and each other, as you complete the rest of your degree.

Ultimately, our goal is nothing less than to have our RE-ENGINEERED first-year program be the best in Canada. We want it to excite, engage, and inspire you and when you are challenged in the upper years of your degree, you will be fully prepared to succeed.

CUNPS PARIS

What Are They and Why They Matter...

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Engineering Jumpstarts are your "pre-flight checks" before you begin first-year engineering. They are online quizzes and tutorials in Math, Physics, Chemistry, Technical Communications, Computer Science and Indigenous Reconciliation. The Math, Physics and Chemistry Jumpstarts are based on high school materials and are a relatively quick way to review concepts and material which are relevant to university courses. The Tech Comm, Comp Sci and Indigenous Jumpstarts will give you a helpful "jumpstart" in advance of your university courses.

If you had a challenging last year of high school or if you've been out of school for a while, fear not! This is exactly why we created Jumpstarts. If you get a Jumpstart quiz question wrong you will receive helpful feedback, and you will be able to retry these quizzes as many times as you'd like. If you are completely unfamiliar with the quiz material, there will be tutorials available that will help you learn how to do the questions. And if you still find the work challenging, there will be teaching assistants available in the beginning of classes to assist you.

Jumpstarts are "Assignment 0" and are mandatory for most of your first-year courses (such as Math, Dynamics, Engineering Communication, and Introduction to the Engineering Profession). They are pass/fail assignments, and you get a pass once you have completed all of the quizzes in a unit. The Comp Sci Jumpstart is not mandatory; however, it is strongly recommended especially for those with no (or very limited) programing experience.

How to Access Jumpstarts

You are automatically enrolled in Jumpstarts once you register in your fall courses. You will receive an email on your new USask account saying you can start the Jumpstarts in the university's learning management system (LMS), which is called Canvas, when they become available. (See page 23 for more details on our LMS to be able to access your Jumpstarts.)

We encourage you to start on your Jumpstarts when they become available in July/August (and to complete them before the end of August) so you will be ready to go at the start of the school year. All Jumpstarts, except for Chemistry, must be complete by the beginning of Fall term; your Chemistry Jumpstart will need to be completed by the beginning of Term 2 which starts in January.

More information on Jumpstarts will be forwarded to you in July/August.

GETTING SET UP RDWARE FOR

HARDWARE FOR FIRST-YEAR ENGINEERING

Required Hardware

Laptop Computer

- Audio/headphone jack
- At least 1920x1080 screen
- Webcam
- Microphone (can be 3rd party)
- Bluetooth
- Wifi-6 (802.11)
- HDMI port (or adapter for HDMI)
- At least 2 USBA 3.0 ports (or adapters for USBA)
- At least 1 USBC port (could use hubs for these USB ports)
- Windows 10 (Linux capable*)
- AMD or Intel CPU quadruple core (or better*)
- 2.5-2.9 GHz processor (3.0 or better*)
- 8 GB RAM (16 recommended, 32 preferred*)
- At least 500 GB solid-state drive; partitionable or ext HD*
- Dedicated GPU for video processing
- 2nd solid-state memory slot for expansion*
- IT support will <u>not</u> be available for Apple products / programs**

Optional Hardware

Printer

B&W

Camera

Cellphone

• At least 1GB

*good to have for students who are considering majoring in computer or electrical engineering **All teaching will be on PC-based software/hardware; faculty will not teach on Apple-based software/hardware.

FIRST-YEAR ENGINEERING HANDBOOK

Calculator

- TI-36X Pro (\$30-35 from USask Bookstore) - Required Calculator
- Can't graph data, store documents, talk with other devices or do symbolic integration, but it can do basic arithmetic/trig
- Can handle complex numbers and do numerical integration

Scanner

- Must scan to PDF
- Could be from phone or copier/scanner

Weekly Schedule

The schedule below shows what a typical week will look like in first-year engineering. The green Lecture or Lab time slots show times when you may have lectures or labs. You are expected to attend these. Depending on which block you are registered in, you may have some spares in some of these time slots. There may also be weeks with additional spares, such as "off" weeks for some labs. Some registration blocks may also have evening labs and/or some classes over lunches.



The grey Help Session time slots are optional. During these sessions, you can work with your peers and get help from teaching assistants on specific topics. Each day will feature targeted help for multiple topics. The schedule of these topics throughout the term will be posted online. The yellow, blank time slots represent free time.

Note that module tests and Top Up opportunities will happen outside of the time slots shown here, often during the evening. A schedule of these assessments will be posted in each course syllabus and a complete schedule for all classes will be posted online.





Program Structure

This figure below shows approximately when you'll take your various first-year courses throughout the academic year. Each course varies in intensity and there are often labs associated with each course. For example, Math 133 is a four-credit course and will take up much more time as compared to Electrical Circuits GE 152, which is a one-credit course.



See notes / comments on next page.



Notes / Comments about your Schedule...

- The four natural science courses (Biology, Geology, Chemistry, and Physics) which make up the Natural Science Series are each offered four times in series, with one-quarter of first-year students taking each class at each time so students will rotate through this series in differing orders.
- Students entering Chemical Engineering, Electrical Engineering, Computer Engineering, Engineering Physics and Mechanical Engineering will take Design II (which is GE 143) as well as a Major Bridge Course.
- Students entering Civil, Geological or Environmental Engineering will take a Survey Camp as their Major Bridge Course and do NOT take GE 143 Design II.
- Because of the modular nature of the first-year schedule, there is no one set deadline date for class withdrawals.

IMPORTANT: Because of the modular nature of our first-year schedule, class withdrawal deadlines will vary for individual classes.

<u>IF</u> you are considering dropping a class(es):

- refer to the class specific drop deadline information which will be available in PAWS in the first-year engineering student resources section.
- speak with an academic advisor in order to discuss how your decision will impact pre- and co-requisites for other classes you are and/or are planning to take.



Half-Speed Option

A half-speed option is available for anyone wishing to pursue a reduced course load. This option extends required first-year courses over two years, to allow for more time for family, a job, sports, extracurricular activities or studying. The half-speed schedule is predetermined to ensure prerequisites are met and so that you are still considered a full-time student.

To enroll in the half-speed option, register for a full block of classes, then <u>contact the ESC</u> to ask an academic advisor to move you into the half-speed option.

The coloured courses indicate what you will take in your first year with the half-speed option. In your second year, you take the remaining courses noted in grey.



CLASS REGISTRATION

Block Registration

All first-year engineering students will register for their classes by block registration. This means you'll be placed in a predetermined group, or block, of classes. Stepby-step instructions on how to register can be found in the <u>Registration Guide</u> or the registration tutorial video link here.

How to register for block classes in RE-INCLERED

Click to Watch Registration Tutorial

Transfer Credit

Some first-year engineering students may have transfer credit for coursework they've completed at another post-secondary institution.

Please review the <u>College of Engineering's transfer credit webpage</u> to learn how transfer credits work and the general rules and principles that must be followed.

To start the transfer credit process, please email: <u>engr.transfercredit@usask.ca</u> and provide the following information:

- your first and last name
- your student number
- where you think you might have transfer credit courses from (i.e. the name of the external institution)
- submit course outlines / syllabi for all classes you want to be considered for credit

The transfer credit assessment process is complex and lengthy so we strongly recommend you ask us about transfer credit as soon as possible.

We will work with you to complete your assessment as quickly as is feasible!

STUDENT SUPPORTS

Engineering Student Centre (ESC)

The Engineering Student Centre – also known as the ESC – is a one-stop-shop for undergrads (students earning their Bachelor of Science in Engineering degree). It is located on the second floor of the College of Engineering in the A wing.

You can meet with the college's academic advisors who can help you map out your plan to earn your degree. They can also provide support and coaching to help you reach your academic goals.

Have questions about your application, transfer credit or registration? The ESC can help.

Head there to learn more about awards and scholarships and student exchange and study abroad programs too.

Advisors are there for you.

Contact us: <u>esc@usask.ca</u>; 306-966-5274; or <u>book</u> <u>an appointment</u> with an advisor.



See our USask Student Support page.



Engineering Student Centre (ESC) continued...

You can also reach out to the ESC if you're struggling with your mental health or wellness, in crisis, at risk, facing challenges, or experiencing a difficult situation that is impacting your academic journey.

The Student Support and Outreach Coordinator (SSOC) can provide practical support to ALL students (undergrad and/or graduate) or anyone who may be concerned about a student's wellbeing. The SSOC can also provide mental health and wellness prevention programming.

Contact the SSOC at Jamie.Gegner@usask.ca or by calling 306-966-5274.

You can book an appointment online by clicking here.

Additional health and mental wellness supports can also be found here:

<u>Student Wellness Centre</u> – offers medical and mental health care to USask Students and their dependents.

Empower Me – free mental health and wellness support that is available 24/7 by calling toll-free – 1-833-628-5589

<u>Student Affairs and Outreach</u> – available for support when College of Engineering SSOC is not available.

<u>USask Students Mental and Physical Health</u> – practical tips to support your wellbeing.

HELP BUILT RIGHT INTO OUR RE-ENGINEERED PROGRAM...

Study Squads

All first-year students will be put into a study squad, a group of around 10 students that have the same classes together. You can do your homework and work on your assignments with your study squad.

Help Sessions

Dedicated times are built into the firstyear course schedule so can easily get help with your homework. Teaching assistants will be available Monday through Thursday afternoons to offer help and answer questions on various subjects and class material. "I think the Study Squads were a super great idea. I definitely think a lot of people don't go into first-year university with a whole lot of connections and I think they did a great job putting a lot of kids into a group that they can really connect with and learn with. I'm still pretty good friends with a lot of my Study Squad from last semester, and this semester I made some brand-new friends too that I can talk to as I go through university."

- Mitchel Van Kessel, first-year engineering student



Summer Prep & Fall Term

June 17, 2023 - 12 noon	First-year registration opens
Mid-July – August	Jumpstarts become available (to be done in summer)
July 3 / August 7, 2023	Stat Holidays, university closed
August 31, 2023	TOURS for Engineering First Years (FY); optional - details TBC
September 1, 2023	First day of classes for FY; fully online - offered in real time (live) but will also be recorded. (Sept.5 is first day of in-person classes.)
Early September (TBD)	Deadline to change to the half-speed option without financial penalty; check with ESC
September 4, 2023	Labour Day, university closed
September 5, 2023	Residence move-in for College Quarter, Seager Wheeler, Voyageur Place
September 6-9, 2023	Fall Welcome Week / USask Orientation
September 29, 2023	National Day for Truth and Reconciliation (in lieu), university closed; <u>also</u> tuition payment deadline for Fall Term classes
October 9, 2023	Thanksgiving Day, university closed
November 6-10, 2023	Fall mid-term break
December 11-15, 2023	FY Engineering Major / Discipline Experience
December 18-22, 2023	Top Ups for Fall Term classes (Dec. 22 is last day before break)
December 24 – January 2	University closed



	Winter Term
January 3, 2024	First day for Winter Term classes
Early January (TBD)	Deadline for registration changes for Winter Term courses without financial penalty; check with ESC
January 31, 2024	Tuition payment deadline for Winter Term classes
February 19 – 23, 2024	Winter mid-term break
March 2024 (date TBD)	Deadline for selecting your major / discipline
April 2024 (date TBD)	Notification of assignment of major / discipline
April 2024 (date TBD)	Tuition payment deadline for Major /Discipline Bridge Course
April 9-30, 2024	Major / Discipline Bridge Courses and Design II Lab
Late April 2024 (date TBD)	Last Top Ups for Winter Term classes



COMPETENCY-BASED ASSESSMENT

We will use competency-based assessment (CBA) to determine student grades in most of USask's RE-ENGINEERED first-year engineering courses. Here is how CBA works...

Course Learning Outcomes (CLOs)

Each course will have multiple Course Learning Outcomes (CLOs). Some CLOs will be introduced in sequential modules, while others will be addressed throughout a course.

Root Learning Outcomes (RLOs)

Each CLO is broken into more specific root learning outcomes (RLOs). You'll have multiple chances to demonstrate competency in the RLOs through assessments such as assignments, quizzes, labs, and/or module tests.

Each assessment will focus on specific sets of RLOs and you will always know which RLOs are being evaluated on each assessment because it will be shared with you before and during each assessment.

How RLOs are Used for Grading

Instead of weights being attached to assignments and tests, as in conventional assessment systems, weights are attached to RLOs in a competency-based assessment system. Most RLOs will be evaluated at least two or three times in a course and sometimes more. In other words, you'll have multiple chances to demonstrate your competence in each RLO. If you earn higher grades on an RLO later in a course, these will replace your earlier lower grades for that RLO. Later lower grades, should they occur, are averaged with earlier higher grades for each RLO.

Passing a Course

Most course learning outcomes must be passed in order to pass the course itself. Passing a CLO means you demonstrate competency in the Root Learning Outcomes (RLOs) it contains. Each course outline will detail which specific CLOs you must pass.

COMPETENCY-BASED ASSESSMENT

Types of Learning Outcomes

The first-year engineering curriculum is broken down into four types of Learning Outcome materials: Type A, B, B+, and C.

Type A

These materials are fundamental building blocks that need to be automatized. They are "plug and chug" repetitive operations requiring little judgment, or they are conceptual questions requiring only a basic level of understanding.

Evaluation of Type A Materials: Type A material will usually be evaluated through online quizzes accessed through the Canvas Learning Management System. You can repeat Type A quizzes multiple times and helpful feedback is provided instantly after each quiz submission.

Type B

These materials include simple, fully integrated problems with multiple steps. They require some judgment and may include more advanced conceptual ideas. They are characteristic of the field and are thoroughly covered in class.

Evaluation of Type B Materials: Type B materials are evaluated multiple times in a course. Students must achieve a weighted average of at least 70% in each Type B CLO in order to pass the CLO, and therefore the course. Each Type B RLO in a CLO will be assessed multiple times in assignments, labs, and/or module tests. If your grade on Type B materials is below 70% at the end of a module or course, you can write a Top Up Module Test to raise your grade.

Type B+

Type B+ materials and tasks are those that when done at an adequate level, look like Type B problems. However, in order to excel at them, Type C levels of insight and skill will be required. Most writing and design assignments will be Type B+, for example. So, someone could hand in an adequate submission for a writing assignment, and it would appear to have many of the characteristics of a Type B assignment. But to get a high

COMPETENCE BASED ASSESSMENT

mark on the RLOs covered in that assignment, it would likely require insight and skills more characteristic of Type C problems. In other words, Type B+ problems require Type B skills in order to pass, and Type C skills in order to answer them well. Type B problems only require Type B skills to answer them well.

Evaluation of Type B+ Materials: Like Type B materials, Type B+ materials will be assessed multiple times in a course. Students must achieve a weighted average of at least 50% in each Type B+ CLO in order to pass the CLO, and therefore the course. Each Type B+ RLO in a CLO will be assessed multiple times with Type B+ questions through the assignments, labs, and/or module tests. If a student is below 50% on Type B+ materials at the end of a module or course, they can write a Top Up Module Test, assignment or lab in order to raise their grade.

Type C

These questions are expected to be challenging. Oftentimes, you will not have seen them in class, and they will require advanced insight and judgment, and/or a deep understanding of fundamentals.

Evaluation of Type C Materials: Like Type B materials, Type C materials are also covered in assignments, labs, and module tests. However, students only get one attempt at Type C assessments as opposed to Type B's/B+'s where later/better scores can replace earlier/lower scores. Top Up assessments will not normally include an opportunity to improve the portion of your grade corresponding to Type C questions. These questions will be clearly identified on all assessments.



COMPETENCE BASED ASSESSMENT

Determining your Grade

If you get 70% on your Type B CLOs and 50% on your Type B+ CLOs in a course, your final course grade will be approximately 50% and you will have demonstrated minimal competency.

To get a higher grade, you need to do better on Type B and B+ evaluations and/or do well on Type A and Type C evaluations.

Note that it is possible for you to get an earned course grade over 50%, but still fail the course. This will happen if you have an overall grade below 70% on any Type B CLO and/or an overall grade below 50% on any Type B+ CLO. In this case, you will get a numeric course grade of 49% and will need to redo the course.



GETTING SET UP

Möbius Software

Möbius (https://digitaled.com/mobius) is an online learning platform that provides an interactive environment where students can engage with complex STEM concepts. The platform includes lessons, interactive learning activities, hands-on exercises, and assessments that allow you to practice and learn at a guided, yet self-defined pace. Möbius will be used for Type A assessments in several first-year engineering courses and also for at least some of your Jumpstarts.

You must pay an annual fee of approximately \$30 to access Möbius. You will have access to the platform (and will be able to use it for any number of Möbius courses) for one year from the date of purchase.

To access <u>Möbius</u> for any of your courses for the first time, log in through one of your course websites on Canvas (do not log in to Möbius directly), and you will be redirected to the DigitalEd webstore to pay.

After the initial payment, if you click on any Möbius link in Canvas, you will be taken directly to the corresponding Möbius resources.

Canvas Learning Management System (LMS)

Canvas is a web-based learning management system (LMS) that allows instructors to manage, create and present online course learning materials and assess student learning.

It also offers an intuitive design for student use with easy ways to set notifications, submit assignments, and view grades, and also includes a mobile app option.

Check out this USask page that introduces students to Canvas and its features.



KEY AGADEMIC POLICIES

Academic Integrity

Academic integrity is a commitment, even in the face of adversity, to the fundamental values of honesty, trust, fairness, respect, responsibility, and courage, according to the International Center for Academic Integrity. The USask Library offers a <u>tutorial on academic integrity</u>.

The bottom line is that you are expected to do all aspects of your schoolwork in an ethical manner. The following are some key rules: submitting only your own work for academic credit, properly citing the work of others, and following all exam (test) / lab / assessment rules.

Academic misconduct is the term the university uses to describe cheating. It is not tolerated. You are responsible for understanding the <u>USask Student Academic Misconduct Regulations</u>. The regulations define the <u>various types of academic misconduct</u>. If it's discovered that you are cheating, you will be disciplined.

Academic and Promotion Policy

The academic and promotion policy outlines the process and criteria for satisfactory academic progress in the College of Engineering. The policy also stipulates the criteria that will be used when determining whether a student should be placed on academic action (i.e. Warning, Probation, Suspension, or Dismissal) and the implications of each type of academic action.

For more information, see the college's <u>Academic and</u> <u>Promotion Policy</u>.

About Appeals and More

Further information on related policies can be found at:

USask Academic Appeals

Academic Courses Policy on Class Delivery, Examinations and Assessment of Student Learning



KEY AGADENIGPOLICIES

Academic Accommodation

The College of Engineering strives to foster diversity, inclusiveness, and student success by ensuring that students receive equitable opportunities for academic success and personal development.

Providing academic accommodations requires a coordinated effort by faculty, instructors, staff, students, and other stakeholders.

Undergraduate students are responsible for organizing their own needs assessment, subsequent requirements, and academic accommodations. USask's <u>Access and Equity</u> <u>Services</u> office can help with this. The <u>Engineering Student Centre</u> can also provide guidance and referral as needed.



Standard of Student Conduct

USask's <u>Standard of Student Conduct</u> is a set of principles and expectations for students. They are not meant to actively monitor or control student behaviour, but do provide a way for USask to respond to complaints about student behaviour that violates the standard of conduct expected in non-academic matters.



The Engineering Co-op Internship Program is an optional academic program available to undergraduate students, both domestic and international, who are registered in the College of Engineering. Students who participate may take one or more full-time, paid work placements to enhance their degree.

Taking on a work placement can help you kickstart your career, learn more about the profession and put into practice the knowledge and skills you are gaining in the classroom!

Flexible Term Lengths

The program offers 4, 8, 12, and 16-month work terms.

Varied Start Dates

Begin your work term at the beginning of January, May, or September.

Gain Experience

Develop a professional network, hone your engineering skills and can gain up to 20 months of paid engineering-focused work experience.

Support

You will receive support from program staff, an industry mentor and a workplace supervisor.



PROGRAM STATISTICS

posted; many employers hire for multiple positions
placed across Canada
of the placements in Saskatchewan
average monthly salary (\$25-27/hr; \$50,000/year)

For more information on the Engineering Co-op Internship Program visit our <u>website</u> or contact our program staff <u>https://engineering.usask.ca/co-op/contact-us.php</u>.



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