



# FROSH HANDBOOK



2016-17



University of Manitoba  
Engineering Society



@u2016s\_eng



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FIRST YEAR COURSE DESCRIPTIONS

THE DEPARTMENTS OF THE FACULTY OF ENGINEERING

ENGINEERING ACCESS PROGRAM (ENGAP)

TECH SOC GUIDE

ENGINEERING CONFERENCES & COMPETITIONS

SUMMER SESSIONS & MINORS

#GETINVOLVED

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COMPUTERS AND NETWORKING

TUITION FEES, REGISTRAR'S OFFICE & ENGINEERING SCHOLARSHIPS

ROASS & COURSE OUTLINES

DROPPING A COURSE

EVALUATIONS & CREDIT TRANSFERS

EXAMS

GRADE POINT AVERAGE (GPA)

UMSU HEALTH AND DENTAL PLAN

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FINAL TIPS FOR YOUR FIRST YEAR

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SAMPLE TIMETABLE

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Welcome to Engineering!

You are beginning one of the most exciting times of your life. These next 4 to 7 years will change your perception of the world around you. Make sure to make the most of your time in engineering since before you know it you will be graduating and off to the working world.

The opportunities to get involved in engineering are extensive. You can improve the student experience with the University of Manitoba Engineering Society ( U M E S ), you can design and build cars and airplanes with SAE and you can design a small operational satellite with UMSATS. These are only a few of the ' a R P U [ V P N Y ' \ P A R a R ' here in engineering. This handbook will provide you with more details on these technical societies and many more! I encourage you to get involved with one or many of these technical societies. The knowledge you learn will be a huge asset when you apply for engineering summer positions.

Engineering students are extremely lucky in being able to find jobs related to engineering while they are still students. Make sure to attend Monday night HIRED and to attend UMES' Wine and Cheese events to learn about all the companies that hire engineering students. Some companies such as MacDon and Manitoba Hydro will even hire first year students so make sure you apply!

In engineering we have to work hard but we also know how to have fun. Throughout the year UMES organizes sporting event and socials that allow you to take a break from your hectic studies and blow off some steam. Make sure to also apply for one or multiple UMES conferences that will allow you to meet engineering students from across Canada.

As Senior Stick it is my responsibility to represent you as students both internally at the university and across the country. If you have any questions please feel free to stop by UMES (E2-292) and talk to either myself or one of the other 70+ UMES council members.

I wish you all the best in engineering,



André Marchildon  
109<sup>th</sup> Senior Stick  
ss@umes.mb.ca

These red, bolded terms will help guide you through the /\_` U Handbook and through your first year of engineering!

° \$! fi! £See **! [TVRR` TR`PQ`a! N`VON**

/\_! ' £The Canadian Federation of Engineering Students (which includes U of M). This national organization provides a diverse range of services as they work to support a number of Canadian Engineering schools.

\&R^bV VREFers to a course which must be taken concurrently with another course.

! [ TV RR\_` fiR` PR[ aV a` ! N[ V\ON: Also known as the Association. This organization governs the work of all Professional Engineers and Geoscientists in Manitoba. (Formerly known as APEGM, The Association of Professional Engineers and Geoscientists of Manitoba).

! [ T# £The U of M's Engineering Orientation, also known as the two funnest days of the year. Be sure to attend on September 8<sup>th</sup> and 9<sup>th</sup>!

/\_` UERefers to a first-year student.

fl&ı ~ £Helping Industry Reach Engineers Directly. These sessions are held every Monday evening and provide students the opportunity to interact with industry (there's free pizza!).

žNOERefers to the portion of a course involving hands-on experiments. Most labs also require the submission of an individual or group report.

! V&R\_Z £Most courses include one or two midterm exams which cover a selected portion of the course content. Although they come up quickly, midterms serve as an effective tool to keep updated with course material.

\$\_R\_R^bV VREFers to a course which must be completed prior to registration for another course.

( ° £Teaching Assistant. TAs will usually be available to students during labs/tutorials and can be very helpful in answering questions.

( RPU[ VPNY' \PRaR' £Also called "Tech Socs", this term refers to the many engineering student groups associated with UMES. Tech Soc lounges are located on the fifth floor of E1.

( UR'+ V Q\ d £Opens onto the Engineering Atrium and is a great resource for all engineering students. Stop by The Window to purchase snacks, UMES merchandise and event tickets or to simply ask questions.

( ba\\_WNERefers to the portion of a course involving practice problems. Some tutorials require these questions be submitted while others do not.

) ! ' £The University of Manitoba Engineering Society. Refers to the faculty student council which coordinates many important events and services.

+ ! ' ' (£The Western Engineering Students' Societies Team (which includes U of M). WESST provides a diverse range of services to its 10 Western Canadian member schools.

## ' ) ! ! | & ' f l i , Ž ž Ľ ( ' .

- Claim your UMnetID and activate your associated student email
- Check your assigned registration time (available on Aurora Student <http://aurora.umanitoba.ca>)
- Register for courses on Aurora AS CLOSE TO YOUR REGISTRATION START TIME AS POSSIBLE (first year Engineering courses fill up quickly!)
- Check your snail mail/email for important information regarding Engineering Orientation (i [ T#)
- Ask to join the “University of Manitoba Engineering Orientation (EngO)” Facebook group (<https://www.facebook.com/groups/386388501407726/>)
- Attend EngO, our own Engineering Orientation!
- Apply for i [ T V ] R R \_ ' f i R \ ` P V R [ a V a ` ! N [ V a \ O N Student Membership (apply online or fill out the forms available at ( U R + V [ Q \ d )
- If you'd like a locker, register for one at The Window on September 8<sup>th</sup> (there are a limited number of lockers so get there early – people start lining up as early as 7am!)
- Get your student card (check online for information on when and where to have this done [http://umanitoba.ca/student/records/pii/photo\\_id.html](http://umanitoba.ca/student/records/pii/photo_id.html))
- Follow @UMES\_ENG on Twitter and Instagram and like “U of M Engineering Events” on Facebook (<https://www.facebook.com/umengpics>)
- Check out the UMES website at <http://umes.mb.ca>
- Buy tickets to UMES' upcoming 229 Social in the Fall term
- Enjoy a great year in the #bestfaculty

## Math 1510 and 1710 Prerequisites

In your first year you will take three math courses, two sciences courses, two complementary courses, one computer science course and four engineering courses. Make sure to complete and pass all three of your math courses in your first year otherwise this will limit the courses you will be able to take in future years. Also make sure to check which courses are **prerequisites** for the second year courses in your selected department.

### Math 1510 Applied Calculus I (MATH 1510)

Math 1510 introduces basic calculus concepts with an emphasis on derivative calculations and limits. There is also a brief introduction to integration. The course usually includes weekly **lectures** and two **labs**. Calc I is a prerequisite for Calc II, so if you intend to take Calc II during your first year make sure to register for Calc I in the fall semester.

Prerequisites: MATH 100 or MATH 101 + PHYS 100

Resources: Office hours, tutorials, Math Help Centre, UMES Tutor Registry

The textbook problems are a great way to prepare for the midterms and final. Some professors give out a list of problems before the tutorials sessions. If so, make sure to attempt the problems before the tutorials so that you can get the most out of the sessions. Don't hesitate to ask questions in the tutorials. The textbook used in Calc I will also be used in Calc II (as well as the second and third year math classes) so remember to keep your textbook.

### Math 1710 Applied Calculus II (MATH 1710)

Math 1710 is one of 3 first year math classes. This course focuses on integration techniques. There is also an emphasis on applied calculus, which includes fluid pressure and spring problems. Calc II typically has two midterms during the semester. In the past, Calc II has included weekly tutorials. Calc I is a prerequisite for Calc II. Calc II is a prerequisite for all other engineering math classes.

Prerequisites: MATH 1510 + PHYS 100

Resources: Math Help Centre, office hours, tutorials, UMES Tutor Registry

Attend the tutorials, they are a great place to ask questions. In previous years, formula sheets were allowed for the midterms and final. If you are allowed a formula sheet, make sure to

follow all formatting instructions. The textbook problems are a good way to prepare for your tests.

### Introduction to Electrical and Computer Engineering (ENG 1450)

ENG 1450 is the introductory course for Electrical and Computer Engineering. The first part of the course focuses on the basics of electrical engineering including voltage, current, Ohm's Law and power. The second part of the course introduces the basic concepts of digital logic including binary numbers, logic and Boolean algebra. This course has 10 **W/O**. In previous years, the labs have covered topics ranging from the electric motor to biomedical engineering. If you are planning to enter Electrical or Computer engineering make sure to take this course during your first year, as it will be a prerequisite for nearly all of your second year courses! There are no prerequisites for this course.

Visit [www.eng.utoronto.ca](#) + [www.utoronto.ca](#)

UMES Tutor Registry, course [ENG 1450](#)

The midterm and final are both comprised of multiple choice questions. As such, it may be helpful to prepare for the exams by doing the practice tests posted on the course website. Read through the lab handouts before your lab section. Bring tape and scissors to the labs, as some of the projects have a "build" component. During the first lab section, the professor or TA will discuss how to use a breadboard. Make sure to pay attention as this will be extremely important for all subsequent labs!

### Techniques of Classical and Linear Algebra (MATH 1210)

MATH 1210 is one of the three first year math courses (along with Calc I and Calc II). The course covers a variety of introductory math topics including matrix operations, solving systems of equations, complex numbers and eigenvalues. The course usually includes both lectures and tutorials. There are no prerequisites for this course. However, MATH 1210 is a prerequisite for all second year engineering math courses, so make an effort to take this course during your first year.

Visit [www.math.utoronto.ca](#) + [www.utoronto.ca](#)

Math Help Centre, UMES Tutor Registry

Start your assignments early. They are usually quite time consuming, and it is important to leave yourself enough time to seek help if needed. Purchase the booklet of old exams from the bookstore. They will be very helpful in preparing for your final (particularly if there are old

exams written by your professor). Attend your tutorials! The TAs will go over sample problems during this time and will also be available to answer individual questions.

### Introduction to Statics (ENG 1440)

ENG 1440 is the introductory course for Civil Engineering. The course covers concepts related to balancing forces in two and three dimensions. Some of the topics include trusses and frames. In previous years the course has included weekly tutorials, one lab and two midterms. There are no prerequisites for this course. Statics is important for students entering Civil, Mechanical or Biosystems Engineering, as it will be a prerequisite for future courses.

Visit the EUMES Tutor Registry, tutorials

Attend the weekly tutorials. There may be assignments due during the tutorial session. Additionally, the TAs will be present during the tutorial to help answer any questions you may have. Make sure to follow any formatting instructions given by the professor or TAs for your assignments. Redoing your assignments is a great way to prepare for your midterm and final. You may need an engineer's ruler (available at the Bookstore) for the tests, so remember to bring it!

Design in Engineering (ENG 1430)

ENG 1430 introduces first year students to the principles of design and project management. Students will be assigned a team to work with throughout the semester. Lectures discuss various topics including the stages of design and engineering failures. There are weekly, multiple choice mini-tests which cover the topics discussed in lectures. A main aspect of the course is design projects. Teams will work on three or more projects throughout the term. Past projects have included an elastic band car and an egg mover.

Visit the EUMES Tutor Registry, ETAs

Do not be late for this class. Attendance is important, as part your mark for the course is based on peer evaluations. Students are required to keep track of their work in a journal. Try to be as thorough as possible and follow all specific formatting instructions. Do not forget to bring your journal to class on the due date! Expect to spend a significant amount of time working with your team on the design projects.



## Introduction to Thermal Sciences (ENG 1460)

ENG 1460 is the introductory course for Mechanical Engineering. It includes a variety of topics such as fluid pressure and heat transfer. In previous years there have been weekly tutorials but no labs. This course typically has two midterms. There are no prerequisites for this course. For students entering Mechanical or Biosystems Engineering, it is important to complete this course during your first year as it will be a prerequisite for other courses.

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&R' \b\_PR' EUMES Tutor Registry, TAs, tutorials, office hours

There will often be assignments due during the tutorials. Make sure to follow the formatting instructions given by your professor (you may need to purchase the engineering graph paper available at the Bookstore and The Window). Tutorials are also a great chance to ask questions. Show as much work as possible on all assignments and tests as thermodynamics problems typically require a lot of steps. The textbook is essential for this class. Reviewing your tutorial questions and practicing old exams is a great way to prepare for tests. Don't forget to include units on all assignments and tests!

## Computer Programming for Scientists and Engineers (COMP 1012)

COMP 1012 is an introductory course in computer programming. The language used in this class is Python. The course will cover basic programming concepts such as data types, loops, lists, tuples and plotting. The course usually includes one midterm and weekly labs. There will likely be several assignments due throughout the term. The course has no prerequisites and is particularly important for students entering Computer Engineering.

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&R' \b\_PR' EOffice hours, tutorials

Start on your assignments early. They are usually quite extensive and "debugging" may take a significant amount of time. There are often marks given for commenting your code. Make sure to attend the labs. In previous years, a portion of your mark was based off lab attendance. Prepare for the midterm and final by practicing old tests and reviewing your assignments and the lab questions. If you do not have previous coding experience you may find <http://www.codecademy.com> a helpful resource.

## Physics 1: Mechanics (PHYS 1050)

~ R' P\_M a\ [ fPhysics 1 covers topics such as kinematics, dynamics and an introduction to special relativity. In the past the course has included one midterm, five labs, four tutorial sessions and frequent in-class iClicker questions. The tutorial sessions include a problem solving component and a quiz. Calc I is a P\ ¥\_R^bV V\ R for Physics. 1

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&R' \b\_PR' fOffice hours, tutorials

( V ` fThe lab write-ups for physics are completed during the lab sessions. Therefore, you may find it helpful to read over the lab instructions before the lab session. The problem solving sessions in the tutorials provide a great opportunity to practice the topics covered in class and to ask the TAs questions. The midterm and final are all multiple-choice questions. The lab manual contains several old midterms and finals which are very helpful in preparing for the tests.

.\_b\_` RfCritical Thinking (PHIL 1290)

~ R' P\_M a\ [ fPHIL 1290 is a recommended (but not required) course for first year engineering students. Philosophy counts as one of two required complementary studies electives. The course content and format varies greatly depending on your professor. Some of the course topics from past years include fallacies and an introduction to formal logic. There are no prerequisites for Critical Thinking.

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&R' \b\_PR' fOffice hours, tutorials

( V ` fIf philosophy does not interest you, there is an option to take any 1000-level (or higher) class in the Faculty of Arts or the Faculty of Management (with the exception of ARTS 1110). Some of these alternative courses include those in human resources, anthropology, economics, film, foreign language, entrepreneurship and history. There are many options, so try to find a course that interests you!

.\_b\_` RfUniversity 1 Chemistry: Structure and Modeling in Chemistry (CHEM 1300)

~ R' P\_M a\ [ fCHEM 1300 is the introductory chemistry course for both Science and Engineering students. The course covers concepts pertaining to atomic/molecular structures and their relationships to macroscopic physical properties. The course includes one midterm, seven labs and five online assignments, as well as frequent in-class iClicker questions. There are no prerequisites for this course.

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&R' \b\_PR' ESupplementary Instruction (SI) services, TAs

( Vj ` EThe midterm and final are both comprised of multiple choice and short answer questions. As such, it will be helpful to prepare for the exams by doing the practice tests provided on UM Learn. Labs can be quite lengthy therefore you'll find it helpful to read and understand the instructions beforehand. Bring a lab coat and glasses (both are available at the Bookstore) to all of your labs.

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As of September 2016, the list of courses that can be used to satisfy the Written English Requirement for the program has been expanded to include a wider range of courses. Please refer to the Faculty of Engineering website to see list of courses. Note that this will only come into effect after September 2016.

In the previous years the English requirement has been ENGL 1400. Course description follows.

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~ R' P\_Mj aX[ EAll engineering students are required to take a first year English course. The course contents vary greatly depending on the professor and the course section. Many of the sections have "themes" which apply throughout the term. Past themes have included horror and fantasy. Students may be required to write several essays during the term. There are no prerequisites for this course.

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&R' \b\_PR' EOffice hours, Academic Learning Centre

( Vj ` EComplete all assigned readings so that you can keep up with in-class discussions. Some English professors assign marks for participation or attendance so make sure to show up to class. Start on your essays early to allow plenty of time for editing and revising. Also note that, as of September 2015, engineering students are provided some alternative course options which include ENGL 1340, ENGL 1310, ENGL 1200 and ENGL 1300.

<http://umanitoba.ca/faculties/engineering/departments/biosystems/>

Biosystems Department Office

EITC E2-376  
headbio@cc.umanitoba.ca  
474-6033

<http://umanitoba.ca/faculties/engineering/departments/biosystems/>

HEAD: Danny Mann (danny\_mann@umanitoba.ca)  
ASSOCIATE HEAD: Nazim Cicek (cicekn@cc.umanitoba.ca)

Biosystems Engineering combines aspects of engineering with science and biology. Possible areas of study include plant and animal growth facilities, biomedical devices, new biological production systems in pharmaceutical industries and agricultural machines, among others. Biosystems Engineering also addresses concepts including the ecological impact of biological waste, new methods of food preservation, storage systems, land irrigation design, and drainage systems.

In addition to the standard Biosystems Engineering program, the department offers an Environmental Option for students interested in this field. Similarly, the department also offers areas of specialization including Bioprocessing, Agricultural and Biomedical Engineering. Finally, the department also offers a program for students intending to enter the Faculty of Medicine. Students interested in any of these programs should consult with the Biosystems Department Office to select an appropriate set of elective courses.



Civil Department Office

EITC E1-368A  
civil\_eng@umanitoba.ca  
474-9220  
<http://umanitoba.ca/civil/>

HEAD: Ahmed Shalaby (shalabya@cc.umanitoba.ca)  
ASSOCIATE HEAD (Undergraduate): Marolo Alfaro (alfarom@cc.umanitoba.ca)  
ASSOCIATE HEAD (Research): Dimos Polyzois (polyzoi@cc.umanitoba.ca)

Civil Engineering work addresses issues related to infrastructure and to the environment. More specifically, civil engineers design, manage, maintain, and supervise the implementation of various structures using advanced technologies and computer-aided engineering. Civil engineers serve as key players in areas such as urban redevelopment, meeting the challenges of sustainable development, environmental pollution control, public infrastructure renewal, and the preparation for, or recovery from, natural disasters.

In addition to the standard Civil Engineering program, the department offers an Environmental Option for students interested in this field. Students interested in this program should consult with the Civil Department Office to select an appropriate set of elective courses.



Electrical and Computer Department Office

EITC E2-390  
ece-inquiries@lists.umanitoba.ca  
474-9603

<http://umanitoba.ca/faculties/engineering/departments/ece>

HEAD: Joe LoVetri (Joe\_LoVetri@umanitoba.ca)  
ASSOCIATE HEAD, ELECTRICAL: Derek Oliver (Derek.Oliver@umanitoba.ca)  
ASSOCIATE HEAD, COMPUTER: Dean McNeill (Dean.McNeill@ad.umanitoba.ca)

The work of Computer Engineers is sometimes hidden and embedded into everyday objects such as cars, bank machines and smartphones. Computer Engineering students receive a broad education which encompasses both the hardware and software aspects of any application. In addition to the standard Computer Engineering program, the department offers three focus areas for interested students. These include the study of Embedded Systems, Communication Networks and Machine Vision. Students interested any of these programs should consult with the Electrical and Computer Department Office to select an appropriate set of elective courses.

Electrical and electronic systems are present in every aspect of life, from the power that lights a house at night to the toaster that prepares breakfast in the morning. Life would be very different without the benefits of these and other devices designed chiefly by electrical engineers. In addition to the traditional fields of electric power systems and telecommunications, today's electrical engineers are also expanding their work into fields such as biomedical devices and micro-electronics. In addition to the standard Electrical Engineering program, the department offers four focus areas for interested students. These include the study of Power and Energy Systems, Wireless Communication Devices, Biomedical Engineering and Engineering Physics. Students interested any of these programs should consult with the Electrical and Computer Department Office to select an appropriate set of elective courses.



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Mechanical Department Office

474-9804

<http://umanitoba.ca/faculties/engineering/departments/mechanical>

EITC E2-327

me\_inquiries@umanitoba.ca

HEAD: David Kuhn (david.kuhn@umanitoba.ca)

ASSOCIATE HEAD: Madjid Birouk (madjid.birouk@umanitoba.ca)

Mechanical engineering is an ever-growing field, thanks in part to the demand for more efficient and environmentally-friendly automobiles, aircrafts, homes, and manufacturing processes. Particular areas of emphasis include heat transfer, stress analysis, fluid mechanics, machine design and material science.

In addition to the standard Mechanical Engineering program, the department offers Aerospace and Manufacturing options as well as streams in Materials, Thermofluids and Solid Mechanics. Options require five technical electives while streams only require three. An additional choice for Mechanical students is to pursue an undergraduate thesis which counts as two technical electives. Students interested in any of these programs should consult with the Mechanical Department Office to select an appropriate set of elective courses.



<http://umanitoba.ca/engap/>

ENGAP Office

EITC E2-442

[engap@cc.umanitoba.ca](mailto:engap@cc.umanitoba.ca)

204-474-9872

<http://umanitoba.ca/engap/>

The Engineering Access Program is designed to provide persons of Aboriginal ancestry with access to university studies leading to a Bachelor of Science in Engineering. In pursuit of this goal, ENGAP provides instruction, along with a combination of academic, tutorial, counselling and financial support to their students.

ENGAP provides pre-engineering courses for new students. Academic staff, counselors and tutors are also provided to assist students throughout their entire engineering education.

The ENGAP counselor provides individual and family counseling, as well as assistance with university adjustment, housing, and childcare. Communication and personal development workshops are also put on throughout the year.

To be eligible for ENGAP scholarships and bursaries students must:

- Have completed 60% of a full course load (as determined by ENGAP) in the previous academic year.
- Be registered in 60% of a full course load (as determined by ENGAP) in the current academic year.
- Have an assessed financial need (bursary only).
- Have a Canada Student Loan/Access Bursary.

ENGAP provides summer and permanent engineering job search assistance to all students enrolled in the program.

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Contact Person: **UVfIN f VTU**  
Contact Email: **FUV&N f VTUÉ TZ NPAZ**  
Lounge Location: **IK, i ÖÖÖ**

The Canadian Society for Bioengineering (CSBE) chapter at the University of Manitoba is located in E1-519. The 2013/2014 year brought major changes to our group as a small number of members took it upon themselves to refurbish our space. From that point forward we aimed to bring back activities from the Biosystems department's past such as the annual BBQ, which last year showed the largest attendance ever. This year we hope to add industry tours to help students make connections within the engineering industry as well as to hold at least one social.

In addition to making connections with industry partners, members are given access to the upstairs lounge. Last year saw the replacement of all the furniture, as well as the addition of a high-power gaming computer, new printer and 50-inch flat screen TV for member use. Whether you are in your 1<sup>st</sup> year trying to decide on a department or in your graduating year, the CSBE lounge is a great place to come make friends who are going through the same courses that you are.



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Contact Person: "**ReafNORZ N**  
Contact Email: **PZRE bZR Z OFN**  
Lounge Location: **IK, i ÖÖÜ**

The University of Manitoba's Canadian Society of Mechanical Engineers (CSME) chapter offers Engineering students opportunities to explore both mechanical and general engineering in Manitoba through various events including industry tours. Acting as a liaison between the Mechanical Engineering department and the undergraduates of the Mechanical Engineering program, we strive to enhance the academic and professional experiences and overall successes of each student. We also offer opportunities for students to expand beyond Manitoba through a number of nationwide conferences covering topics such as composites and biomedical technology. Our members range from 1<sup>st</sup> year to final year students, making CSME a great environment for knowledge transfer.

In addition to opportunities for academic growth, the U of M chapter of CSME offers a tightly-knit community of students who understand that a few BEvERages and relaxation are needed after long days and nights of schoolwork. Each term CSME holds a PUB crawl or social to encourage students to kick back and relax before the onset of midterms. Announcements related to Mechanical Engineering news, events, etc. will be made to all Mechanical students throughout the year, but if you would like access to our exclusive CSME events (sign-up required) please provide us with your email address and we'll contact you soon!

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Contact Person: **ZRZ ZNZ VLR**  
Contact Email: **XRV VVZ VLF VRR\_T**  
Lounge Location: **IK, i ÖÖÜ**

UMIEEE stands for the University of Manitoba Institute of Electrical and Electronics Engineers. We are the technical society for Electrical and Computer Engineering students at the U of M. However, we also welcome students from all other programs. We have a lounge and a lab on the 5<sup>th</sup> floor among the other tech socs where you can come to study, ask questions, meet people and relax.

Being a member of UMIEEE has a number of benefits. We have a lounge that contains all of the essentials for student life in engineering such as lockers, common kitchen appliances, study space, and computers. Being a member gives you the opportunity to have access to the lab which is well equipped with multimeters, oscilloscopes, soldering stations, arduinos and various electronics, making it perfect for project work. We have discounted access to many of the professional development workshops held throughout the year.

Visit the above website to join as a student member. Membership with IEEE International comes with a subscription to both IEEE Spectrum and Potentials magazines and access to various services on the website. Next, stop by E1-514 to present your proof of membership to an officer, and you're done!

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Contact Person: A\_ON "NbR  
Contact Email: ONbR VE Z fbZ N[ V\ ON#N  
Lounge Location: i K, i x#Lk

The Engineering Access Student Association (EASA) is the student council that represents the Aboriginal students in the Engineering Access Program (ENGAP). The council puts on various events and activities during the school year to promote a welcoming environment for the ENGAP students.

To join EASA you must be of Aboriginal ancestry and be a member of ENGAP. To become a member please come visit our lounge, call us at (204) 474-9872 or send us an email.

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Contact Email: XbWV[ V#E RJO#N  
Lounge Location: i K, i ÖEÜ

If you are interested in social change and would like to expand your skill set beyond technical engineering skills, consider joining Engineers Without Borders (EWB). Our mission is to fight poverty in sub-Saharan Africa by working with our African partners to create positive change in the lives of millions of people. It is a daunting goal, but we believe that through constant innovation and humility we can achieve the change we envision.

The University of Manitoba chapter is one link in the EWB chain, a movement that spans two continents and includes thousands of members. We are a powerful presence on campus and beyond. Whether we are striving to create Manitoba's first Fair Trade Certified campus, working with industry partners to promote socially constructive engineering, lobbying politicians for greater aid transparency or fundraising to support one of our African ventures, we always make our voice heard. In EWB, the opportunities for personal growth and making a difference are endless: travel to Africa with our Junior Fellowship program, organize events, lead a chapter initiative, attend conferences across Canada or simply broaden your perspective through engaging conversation. EWB is constantly expanding and innovating – join the movement today.

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Contact Person: **fNB R]RfLN CR**  
Contact Email: **J\_RVR E VrbZ N V\ONPN**

The University of Manitoba Institute of Transportation Engineers (ITE) student chapter focuses on professional development and advancing the education of our chapter members. We also strive to improve transportation safety and awareness in our community through various public service activities. We are involved in four main areas: (1) Technical activities, (2) Professional involvement, (3) Public service and (4) Social events and fundraisers. Every year our student chapter organizes over 50 events, some of which include:

Technical tours, such as the Panama Canal, Hoover Dam, Transportation Research Lab in London, UK and the Port of Los Angeles.

Professional involvement activities such as conferences and workshops.

Public service endeavours such as building bikes for underprivileged children and preparing hampers for the Christmas Cheer Board.

Social events with industry professionals including our annual Christmas Party.

Altogether our undergraduate and graduate students, along with our advisory faculty members, form an energetic and enthusiastic group who continue to pursue their interests collectively within the field of transportation engineering. The Canadian Institute of Transportation Engineers (CITE) has recognized our passion and enthusiasm by acknowledging us as the Best Student Chapter in Canada nine times in the last eleven years. In 2014, our student chapter was also recognized as the Best International ITE Student Chapter, marking the first time this award was given to a chapter outside the United States. For more information on how you can become a part of our student chapter please visit our website.

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Contact Person: **žbv! VQFR**  
Contact Email: **ŪZŅNRĒ TZŅWAZ**

Students for Sustainability (S4S) provides a unique opportunity for students to gain hands-on design experience by giving them real-life problems to solve in developing regions using sustainable solutions. A new team is selected every September through an application and interview process to work on projects such as rainwater, harvesting and filtration, pumps, waste management, stoves, power generation, permaculture, health and new construction materials/techniques. Students design and prototype solutions during the fall semester before traveling to rural Honduras over the reading break in February to implement the projects. The challenge of taking designs from paper to reality in a foreign culture and context richly enhances the engineering education experience while also developing cultural awareness as students live and work with local Hondurans. Students from all engineering departments are encouraged to apply as engineering design principles can be applied to any type of project. Students in their 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> year will have precedence. A cost of \$1500 takes care of round-trip airfare to Honduras and the in-country expenses of accommodations, transportation and food.

Email the S4S project manager for a copy of the application form.

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Contact Person: **'RN' &RTUJ**  
Contact Email: **bZ RTUĒ Z fbZ N' VACWV**

The University of Manitoba AREMA Student Chapter, or UMASC, is a student group dedicated to the promotion of railway engineering and is associated with the American Railway Engineering and Maintenance-of-Way Association (AREMA), the professional organization for the railway industry. UMASC promotes the advancement of railway related engineering by fostering the close association of students with the railway engineering profession and AREMA and educates students on topics of interest in railway engineering.

If you are interested in railway engineering and being part of a group of motivated and passionate students, UMASC is the place for you! We host Guest Speaker Luncheons, participate in Technical Tours led by industry professionals, and promote common interests among student members. UMASC is the first international AREMA Student Chapter and was founded in Fall 2012. To become a member of this fun, friendly, and educational group, fill out the Student Member Application form on our website and e-mail it to us. We require all our members to contribute \$15 to the student chapter to help fund activities and events. After we receive your registration form and \$15, we will add you on to our mailing list and you'll be notified about all upcoming events.

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Contact Person: ! RTN ŽRT`  
Contact Email: bZ Naax/SÉ TZ NPAZ`

UMATT, University of Manitoba Association of Tiny Tractors, is a student design group at the University of Manitoba consisting of members from a number of disciplines including: Agriculture, Biosystems Engineering, Mechanical Engineering, Electrical/Computer Engineering, Business, and even Geological Sciences. Our goal is to design and fabricate a fully functioning quarter scale tractor for the ASABE competition each spring.

We fully design each year's tractor with the goal of creating a quality product that follows a set of rules and guidelines outlined by the competition. We fabricate as much of our tractor as possible in house, taking advantage of the tools provided to us from the school. For parts beyond our capabilities we partner with local businesses and manufacturing plants to create quality parts.

The room is usually open during normal school hours; students/sponsors/interested parties are always welcome to stop by. We are located in the Agricultural Engineering Building in room 110. Drop on by and say hi!

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Contact Person: ! VPaR`N`VbZ  
Contact Email: J\_RVQ`abZ OZ RÉ TZ NPAZ`

The University of Manitoba's Biomedical Engineering Society (UMBMES) exists to bring together students at the University of Manitoba interested in the biomedical field, specifically to source and propagate knowledge pertaining to the biomedical field and to apply this knowledge through biomedical-oriented events, research and tours. As a group, UMBMES also aims to provide its members with the following resources: a list of current Biomedical Engineering course options, a knowledge of industry in Manitoba, labs both on- and off-campus, and connections to professors who are currently doing biomedical research at the university.

To find out more about UMBMES, the biomedical field or our upcoming events visit our website or our Facebook page (<http://facebook.com/umbmes>). For details on how to get involved please send us an email.



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Contact Person: **! YN(UZ `V[**  
Contact Email: **]\_RVRÆ bZ RVaU]Ra**

The University of Manitoba Efficient and Renewable Technology Hub, or, UMEARTH, is the newest addition to the growing list of technical societies in the Faculty of Engineering. UMEARTH's goal is to not only bridge the gap between students and industry members interested in the sustainable engineering field, but also to improve the campus's energy efficiency with student-led projects run through the university's Physical Plant. With over 60 members in its first year, UMEARTH is expecting to grow with more projects, volunteer opportunities, and networking events. In addition to these directives, UMEARTH is looking to branch to other faculties to better introduce students to working in teams composed of varying disciplines.

For more information on UMEARTH or sustainable engineering, or to get involved with the group, please email [president@umearth.net](mailto:president@umearth.net).

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Contact Person: **! NPSRMQ**  
Contact Email: **RVÆ bZ `NRAZ**  
Lounge Location: **! (L i ÖÜP**

The University of Manitoba student chapter of SAE International (UMSAE) is a non-profit student organization comprised of four teams that design and construct vehicles for entry into international competitions. These design teams include the Aero, Baja, Formula Electric and Formula 1 teams. These teams produce an R/C heavy-lifting plane, an off-road vehicle, an electric open wheeled race car and a combustion-powered open wheeled race car, respectively, each year. UMSAE provides students with a hands-on engineering learning experience that is not available in a classroom setting. The design teams give students the opportunity to develop design, communication, teamwork and project management skills which are essential in the workplace. If you have questions about the organization, any of its teams or how to get involved, feel free to stop and ask anyone wearing a UMSAE shirt or check out our website.

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Contact Person: **! N&URi ~\_VOR**  
Contact Email: **Z N&QVORÉ bZ `Ni ¢PN**  
Workshop Location: **i K, i ØYU**

The University of Manitoba Space Applications and Technology Society (UMSATS) is a multidisciplinary student group with an overall mission to put the U of M into orbit. Our members are engaged in the various aspects of designing, prototyping, and building triple-cube nano satellites, as well as designing and implementing scientific payload experiments. UMSATS primarily participates in the Canadian Satellite Design Challenge, a two-year long national competition, and was awarded 2nd Place Overall in 2012, and the UrtheCast Outreach Award in 2014.

Whether you are more academic, technical, or scientific, all talents are needed to help us be successful! To learn more about UMSATS visit our website, connect with us on social media (@umsats), or email info@umsats.ca.

[http://www.wesst.ca/](#)

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Participation Available To: )! i ' i eRPbaVCR \Y  
2016-2017 Conference Dates: ° ]\_VxY^TjOÖ; xÖÜ  
2016-2017 Conference Location: \*NPAboRj`

WESST EM brings together student representatives from 10 engineering schools in Western Canada. The conference includes a number of sessions, presentations, meetings and discussions centered around the development of student leadership skills.

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Participation Available To: ° Y [TVRRVT` abCR] a  
2016-2017 Competition Dates: i NY/NY(RZ  
2016-2017 Competition Location: ) \S i [TVRRVT

This competition is run annually by UMES and is held here at the U of M. All students are encouraged to participate, and those who qualify will be sponsored by UMES to subsequently attend WEC (see below).

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Participation Available To: ° Y [TVRRVT` abCR] a  
2016-2017 Retreat Dates: i NY#PaCR  
2016-2017 Retreat Location: + V[VRTj! "

This retreat offers students from the 10 WESST schools an opportunity to interact in a camp setting. In addition to WESST's AGM, retreat activities include sessions on building leadership skills and a number of social and team-building activities.

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Participation Available To: ° Y [TVRRVT` abCR] a  
2016-2017 Conference Dates: " \dRZ OR Ö^TjxÖ; xÖÜ  
2016-2017 Conference Location: ! \[aRN%`

This conference focuses on the importance of diversity in Engineering, specifically examining the role of students in achieving the industry's related goals. CDE attracts approximately 150 engineering students from across Canada.

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Participation Available To: ° **W [TVRR\_VT` abQ] a**  
2016-2017 Conference Dates: **INbVf x°TV^i; xÖÜ**  
2016-2017 Conference Location: **NTVf; ° °**

Congress is an annual, student-run conference hosted by a different CFES school each year. The conference serves not only as CFES' Annual General Meeting (AGM), but also as a platform for students to interact with both engineering students and professionals from across the country. Each year CFES Congress attracts 150 to 200 student delegates from over 40 Canadian engineering schools.

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Participation Available To: + **V[R` \S! i`**  
2016-2017 Competition Dates: **! NY+ V[R (RZ ¥( ° °**  
2016-2017 Competition Location: **( ° °**

Run annually by WESST, this competition provides students from 10 Western Canadian engineering schools the opportunity to engage in competition. The competition also includes a series of industry tours and networking activities. Those who place first or second in their category qualify for CEC.

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Participation Available To: + **V[R` \S+ i`**  
2016-2017 Competition Dates: **! Q+ V[R (RZ ¥( ° °**  
2016-2017 Competition Location: **( ° °**

This competition is run annually by CFES and brings together 150 of the most innovative and creative Canadian engineering undergraduate students. In addition to gaining competition experience, participants will have the opportunity to engage with engineering students and professionals from across the country.

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Participation Available To: + **V[R` \S, i`**  
2016-2017 Competition Dates: **( ° °**  
2016-2017 Competition Location: **( ° °**

Also organized annually by CFES, the International Engineering Competition engages students from across Canada, the United States and Europe in consulting and design engineering challenges. Much like CEC, participants are also provided the opportunity to interact with a diverse group of engineering students and professionals.

<http://umanitoba.ca/summer/>

Extended Education

Extended Education

188 Continued Education Complex  
summer@umanitoba.ca

474-8008

<http://umanitoba.ca/summer/>

Taking summer session courses is a good way to reduce your workload during the year. However, do not rely on taking a given course during the summer as the course offerings at this time are very irregular. Those courses offered during the summer are targeted primarily at students who couldn't fit a course into their regular session or who failed/dropped a course during the regular session. If interested, you may petition a faculty to make a course available during the summer. Contact the Vice Stick Academic for help with putting a petition together.

Some courses which **NR** typically offered in the summer include the engineering math courses (Calc I & II, Linear Algebra, Math 1 & 2), some preliminary year engineering courses (such as Intro. to Thermal Sciences and Statics), CHEM 1300 and many Arts and Management courses suitable for your complementary electives. Note that the Summer Session calendar is released in March. The term is generally divided into Spring and Summer "terms" of 2 months each, with some courses spanning both terms.

Engineering Student Affairs Office

Engineering Student Affairs Office

EITC E1-284

Judy.Schroen-Galinaitis@umanitoba.ca

474-9808

Minors in Business, Arts, Music, Math, and Computer Science are offered to Engineering students. These programs help to broaden your education and increase your prospects for future employment. In order to obtain a minor you must complete 18 credit hours of courses from the given faculty.

Requirements for pursuing a minor include the completion of at least 30 credit hours toward your engineering degree, as well as a CGPA of at least 3.00. There are a limited number of spaces available in the minor programs therefore preference is given to students who are closest to completing their degree.

Visit the Engineering Undergraduate Student Affairs Office for more details on pursuing a minor. Applications for minors must be submitted to this office before the end of May.

\*With the approval of the Faculty of Engineering, courses taken to complete minors may also be used to fulfill engineering course requirements.

Office of the Registrar

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Engineers Geoscientists Manitoba (formerly known as the Association of Professional Engineers & Geoscientists of Manitoba (APEGM)) is the governing body for the practice of Engineering and Geoscience in the province of Manitoba. That is, the organization regulates the appointment of Professional Engineers and Geoscientists in the province. The organization also offers student membership, whose associated benefits include:

- Receipt of **(URZRF`a[RS`SR`W[MY** publication.
- Eligibility for discounted Engineers Geoscientists Manitoba events.
- Eligibility for additional academic scholarships.
- The ability to claim up to 12 months of pre-graduation work experience (to be put toward the four year Engineer-in-Training (EIT) program).

Student registration is free for the first year of membership and \$20 for each subsequent year. Registration is simple and can be completed online at <http://www.apegm.mb.ca/StudentApplication.html>. Alternatively, paper copies of the application form will be available at EngO and The Window at the start of the school year. We encourage you to take advantage of this wonderful opportunity provided by Engineers Geoscientists Manitoba!

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This year's UMES Council is comprised of 75 undergraduate students who together oversee many of the events and services within the engineering faculty. We can always use some extra help and therefore encourage first year students to get involved in one of the following ways:

- Öx **°]]Y`a`OPAZRM)! i' /` \`UH`aR[` ¥** Gain some UMES Council experience through a one-year internship with one of our directorships. Applications containing more information will be available at EngO and The Window at the start of the school year. Email [ss@umes.mb.ca](mailto:ss@umes.mb.ca) for more information.
- ×x **AV`aR)! i' ` \`B[`aR` ~`N`M`O`R`** Volunteer at various UMES events without committing to a year-long internship. Registration forms will be available at EngO and The Window at the start of the school year.

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Information Services and Technology Help &  
Solutions Centre

123 Fletcher Argue  
(204) 474-8600  
servicedesk@umanitoba.ca  
<http://umanitoba.ca/computing/ist/>

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In order to access any of the university's computer/online services you must first obtain a UMnetID and password. Simply visit the CLAIMID website listed above and fill in the required information (including the student number you've been provided). Your UMnetID and associated password will grant you access to the following important resources:

- Library and lab computers
- Campus WiFi (uofm-wpa)
- Student email
- UM Learn

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By logging in with a valid UMnetID and password, you are free to use the desktop computers found in many of the on-campus libraries and open-area labs including:

- Donald W. Craik Engineering Library/Computer Lab (EITC E3-361)
- Engineering Basement Computer Lab (EITC E2-135)

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Access to campus-wide WiFi also requires the UMnetID and password as above.

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Your U of M email account uses the described UMnetID/password and contains 50 MB of storage. It is important to check your student email regularly, as important information regarding summer jobs, course changes, student events, etc. is routinely distributed through this system. Additionally, you are required to use your U of M email account when contacting professors and other university staff, as the system filters out emails from many other servers. If you have a Gmail account you can also have your U of M emails automatically forwarded to this address.

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UM Learn is a resource used by many professors to house supplementary course materials, course announcements/calendars and so on. Access requires your UMnetID and password.

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Cashier's Office  
Centre

138 University

474-8222

After registering for courses you should complete a fee assessment (this is normally done within a couple business days), which is available through the Aurora Student system. Look on Aurora and the University of Manitoba website to see by which date you must pay your tuition.

Cash or Interac

are accepted at the Cashier's Office between 8:30 AM and 4:30 PM, Monday through Friday (know your Interac limit and be there early to avoid extremely long lines).

Cheques, bank drafts, and money orders can be mailed or placed in the drop box outside the Cashier's Office.

Web banking or telephone banking. This is available 24 hours a day, with no line-ups!

More information about the different payment methods and how to set them up can be found on the UofM website [https://umanitoba.ca/admin/financial\\_services/revcap/payment.html](https://umanitoba.ca/admin/financial_services/revcap/payment.html).

NOTE: The Cashier's Office DOES NOT accept payment by Credit Card.

Registrar's Office

Registrar's Office

400 University Centre

474-9420

<http://umanitoba.ca/student/records/>

The Registrar's (Student Records) Office provides a range of functions related to the management of your personal and academic information. Services are available in person, with many of them offered over the phone or online for more efficient service. These services include:

Distribution of the Undergraduate Calendar and Registration Guide.

Distribution of final exam schedules.

Administration of the web-based registration system.

Student Photo-ID cards (new and replacements).

Official academic transcripts.

Change of personal information (address, name, etc.).

T2202A Tax Receipts for tuition paid (also available online via Aurora).

Final grade reporting and appeals.



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The Faculty of Engineering offers a number of its own scholarships and bursaries both for new and returning students. While students' names are automatically submitted for a number of these scholarships, some require an application. The list of available scholarships and their associated criteria can be found at <http://ugawards.eng.umanitoba.ca>. The system is quite straightforward, therefore we'd suggest that all direct entry students take advantage of these opportunities and apply!

Note: Many, if not all, of the bursaries require that you fill in the University of Manitoba General Bursary application on Aurora. Once you submit your General Bursary application on Aurora, you will become eligible and automatically considered to many bursaries automatically!  
[http://umanitoba.ca/student/fin\\_awards/bursaries/](http://umanitoba.ca/student/fin_awards/bursaries/)



During your time at the U of M, you may feel the need to drop a course due to a poor grade, extremely heavy course load, etc. Courses are generally dropped through the Aurora Student system. (Dates are from the UofM website: <http://umanitoba.ca/student/records/deadlines/>) The following are the three standard ways of dropping a course:

• \b\_`R&RcV V[ : The first two weeks of classes in both regular session terms (Fall and Winter) comprise the registration revision period. Courses dropped during this period are not considered withdrawals and will not be recorded on student histories and transcripts. After the course revision period you will not be refunded for dropped courses. This year's course revision deadlines are:

- 1<sup>st</sup> term - ' R] aRZ OR\_×Ö`a`×ÖÖÜ
- 2<sup>nd</sup> term - †N[ bN\_f`ÖÜ`aj`×ÖÖÜ`

\* \Yb[ aN\_f`+ V&UQ\_Nd NY°\* + »: A VW incurs no academic penalty but it is recorded on official transcripts and student histories. Voluntary Withdrawals are made after the end of the revision period but before the VW deadline. Students are advised to consider the implications of dropping a course before doing so (i.e. consider whether the course being dropped is a prerequisite for other courses). Also note that there is a maximum allotted number of VW's. This year's VW deadlines are:

- 1<sup>st</sup> term - " \cRZ OR\_ÖY`aj`×ÖÖÜ`
- 2<sup>nd</sup> term - ! N\_PU ÖÜ`aj`×ÖÖÜ`

° baU\`VjRQ\* \Yb[ aN\_f`+ V&UQ\_Nd NY°° + »: Authorized Withdrawals are granted by the Dean for medical or compassionate reasons, and cannot be obtained through the registration system. Official documentation such as a doctor's note is required.

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Remember that some courses are prerequisites for other courses you will need to take in the future. However if you decide not to drop the course and end up receiving a D or F as a final grade, you will have to retake the course anyway (unless it is an elective in which case you may chose to take a different course).

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When deciding whether to drop a course keep in mind that you will be ineligible to proceed in Engineering if your TGPA drops below 2.00 four times, or, alternatively, if the ratio of your passed credit hours to your attempted credit hours goes below 75% (after at least 72 attempted credit hours).

If you have any concerns about dropping a course, contact the UMES Vice Stick Academic, Kim Laberinto ([vsa@umes.mb.ca](mailto:vsa@umes.mb.ca)).

[http://intranet.umanitoba.ca/academic\\_support/catl/](http://intranet.umanitoba.ca/academic_support/catl/)

Centre for the Advancement of Teaching and Learning 208-226 Isbister Building  
474-9714  
[http://intranet.umanitoba.ca/academic\\_support/catl/](http://intranet.umanitoba.ca/academic_support/catl/)

Near the end of every course, the anonymous Student Evaluation of Educational Quality (S.E.E.Q.) forms will be distributed. As a student, these forms are your way of improving the quality of teaching at the U of M so it is important to fill them out – especially the supplementary comments forms.

The completed SEEQ forms are compiled and the results are passed on to the instructors. These forms are very important in helping professors improve the quality of their teaching. Please direct any questions regarding the SEEQ evaluations to the Vice Stick Academic.

Engineering Undergraduate  
Student Affairs Office

EITC E1-284  
[Judy.Schroen-Galinaitis@umanitoba.ca](mailto:Judy.Schroen-Galinaitis@umanitoba.ca)  
474-9808

Many high schools offer Advance Placement (AP) or International Baccalaureate (IB) courses. If a student has attained a minimum course grade of 4 for AP or 5 for IB, he or she may be eligible to have the course credited towards their engineering degree.

Students transferring to the U of M from other universities may also be eligible to have some of their courses credited toward their degree. Important factors to consider in this case include:

Credit will only be granted for courses completed at a recognized and accredited university or college.

Credit will only be granted if the course is the equivalent or near-equivalent to a course offered by the U of M.

Credit transfers are evaluated on a case-by-case basis.



Exams account for the majority of your grade in almost all engineering courses. The following is a brief guide to common issues involving exams.

**Calculator Policy:** The Faculty of Engineering's policy states that any calculator may be used during an exam provided that it cannot transmit or receive signals. You can easily make your infrared-transmitting (HP) calculator non-transmitting by placing a strip of opaque tape over the transmitter. The instructor must inform students of any deviations from the Faculty's policy during the first week of classes and it must be written in the ROASS document. In general, the math courses do not allow the use of calculators.

**Exam Deferral:** Exams may be deferred for medical or compassionate reasons. The application to defer an exam must be filed with the Dean of the Faculty of Engineering within seven working days of the examination period during which the exam was to be written. The application must be accompanied by a medical certificate or other document supporting the reason for exam deferral.

**Exam Review:** Students shall have an opportunity to read their own final exams in the presence of the instructor. Access is granted on the day following the deadline for normal appeal or the day of resolutions of an ongoing appeal, whichever is later. Students planning a formal appeal are encouraged to talk to their professors and request to see their exam before making a formal appeal.

**Special Exam:** If a student has met all the requirements for their engineering degree but has failed a single course in their final session, they can apply for a special exam in that course.

**Exam Schedule:**

Check your exam schedule early, so you have time to visit Student Records and resolve any conflicts.

Allow at least a week of studying time for a midterm and two weeks for a final.

Don't study right up to the last minute before an exam. Leave at least half an hour to let your mind cool down and regain focus.

Food and drink are allowed during exam periods.

You **can** go to the bathroom during an exam.

In courses with consistent professors, reviewing old exams is often the most effective way to study.

Note that exams generally vary in their difficulty relative to the rest of the course work, the amount of study time required, as well as the amount of "rushing" you need to do, among other things. Final exam times are 9:00 AM, 1:30 PM, and 6:00 PM. Exams can be spread out over the entire exam period or concentrated into a 4- or 5-day block. Know your study habits and be prepared!

Engineering Students' Academic Requirements

Engineering students must obtain a grade of C or higher in all program courses in order to graduate. Additionally, graduation requires that students complete all their courses within seven calendar years (after being accepted into an engineering department), while being a full-time student in the faculty for at least 50% of their courses.

**3.1.3.1 Cumulative Grade Point Average (CGPA)**

The three types of GPA are important for determining your eligibility to continue in engineering, as well as for determining scholarship, bursary and, in some cases, job eligibility. You can view your current GPAs and full academic history through Aurora Student.

**CGPA:** The Cumulative Grade Point Average is computed from the grades obtained in all undergraduate courses taken since entering the U of M. In cases where a course has been repeated or replaced by an approved equivalent course only the last grade shall be included in the CGPA.

**DGPA:** The Degree Grade Point Average is computed from all grades obtained in all courses taken as part of the student's current degree program. Where a course has been repeated or replaced by an equivalent course, only the last grade shall be used in the calculations.

**TGPA:** The Term Grade Point Average is computed from all grades obtained in all courses taken during a given academic term.

Each letter grade you receive is worth a certain number of points:

A+	A	B+	B	C+	C	D	F
4.5	4.0	3.5	3.0	2.5	2.0	1.0	0.0

**3.1.3.2 Engineering Student's Academic Standing**

**Good Standing:** A TGPA of 3.50 or better in the most recent academic assessment, based on a minimum of 12 credit hours.

**Warning:** TGPA of 2.00 or higher.

**Probation:** Received when an Engineering student's TGPA drops below 2.00 for the first time.

**Academic Probation:** The second time that a student's TGPA drops below 2.00, the student is placed on academic probation.

° PNORZ VP" b` ] R[ ` \ [ °~ RN[ « f\ \ WQNF »: Received when a student's TGPA drops below 2.00 for the third time. This means you are ineligible to take engineering courses for a period of (usually) 8 months.

±[ RYTVQYR'a\ \$ \_ \ PRROV[ i [ TV[ RR\_V T: The fourth time a student's TGPA drops below 2.00 or, alternatively, a student exceeds the maximum number of replacement courses, the student will be ineligible to proceed in the faculty.

Note that the university calculates your CGPA and TGPA using "quality points", which represent weighted averages. More specifically, quality points are determined by multiplying the points associated with your letter grade by the number of credit hours the particular course is worth. Your total quality points are then added together and divided by your total credit hours for both the CGPA and TGPA. For example, an A in a 3-credit hour class and a B in a 4-credit hour class will give you a GPA of 3.43, as opposed to just a "normal" average of 3.5.



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UMSU Health and Dental Office

110 University Centre  
healthplan@umsu.ca  
474-6666

<http://www.umsu.ca/services/health-dental-insurance>

All full-time students are automatically enrolled in the UMSU Health and Dental Plan and are assessed the \$256.75 fee (subject to change every year) on their tuition statements. Family coverage for your children and/or spouse is available on a voluntary basis for an additional \$384.05 per year. The plan coverage includes:

- Additional prescription drugs
- Massage therapy
- Dental care
- Ambulance coverage
- Physiotherapy
- Travel insurance

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\] a\baIS\ bUNROR[ N] \_\dROR)! ' ) à Q `i; f\ bNR[ \a\_R'b\ROà ] N' àR  
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° FPa b[ a\ C] N' àR \_RZ N\ V\ TON\ FR:

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**~ [aORNS/NOA NX'br aX]`** - Ask your TAs for help with assignments. Ask your professor for help if you don't understand the lecture material. Ask older engineering students for information about past exams and helpful hints. Ask office staff for help with choosing and registering for courses. Ask any UMES council member about upcoming socials, sporting events, professional development opportunities and their many other services.

**&RNOVb\_ YO NRNDASAZ R]]** This may save you a lot of time and frustration.

**° aR[OIRPb\_R** - Professors won't necessarily take attendance but you WILL benefit from attending class.

**'NRNVb\_ aReOIX** - Especially your **, NRb5 S\_i [TVRR`** textbook, which will be used for a total of four to five courses. Often you will find that old textbooks can be useful references in more advanced courses.

**) `ROReOIX NRNT\OdN'a `NRZ \[R'** - Check out the UMES Textbook Exchange at <http://exchange.umes.mb.ca> to buy and sell used textbooks. Archives (the U of M's used bookstore) and Kijiji are also great resources.

**~ [aORNS/NOA Obf aReOIX \[VR** - Visit sites like Amazon and Ebay. Note that the differences between SI international editions and their sold-in-America counterparts are generally irrelevant. Make sure to buy from reputable sellers and remember that these textbooks are likely to arrive from Eastern Asia so allow sufficient time for delivery.

**+ NMa Obf aReOIX ]P** Professors will indicate during the first week of classes whether the textbook listed on Aurora is required for the course.

**žRN[ 'a [NRNRAURab[ [R]** - You'll appreciate not having to walk outside between classes during the winter!

**~ [aUR VNRa ÖTRa[ a VRQ** - Going to university is more than just attending classes, have fun!!

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- [ NPX`

- [ Granola Bars = 0.50
- [ Gummies/Fruit Snacks
  - 1 pack = 0.25
  - 5 packs = 1.00
- [ Hot Rods = 0.25
- [ Lollipops (3) = 0.25
- [ Rice Krispie Squares = 0.25
- [ Welch's Fruit Snacks = 0.25
- [ Chips = 0.75
- [ Chocolate Bars = 1.25
- [ Gum = 1.00
- [ Popcorn = 1.00
- [ Instant Noodles = 1.00

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- [ Jumbo Freeze Pop = 0.50
- [ Pizza Pop (each) = 1.00

" RcR\_NTR`

- [ Pop (Coca-Cola & Pepsi Brands Available) = 0.50
- [ Canned Juice = 0.75
- [ Arizona = 1.00
- [ Energy Drink = 1.00
- [ Sports Drink = 1.00

° ] ] N\_RY

- [ Frosh T-Shirt = 5.00
- [ Bandana = 10.00
- [ Scarf = 15.00
- [ T-Shirt = 15.00
- [ ¾ Sleeve Shirt = 20.00
- [ Baseball cap = 20.00
- [ Toque = 20.00
- [ Cardigan = 45.00
- [ Hoodie = 50.00

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- [ Patch
  - Department = 1.00
  - Faculty = 5.00

- [ Lapel Pin
  - 1 Pin = 2.50
  - 2 Pins = 4.00
- [ Lanyard = 2.50
- [ USB Key (8 GB) = 10.00
- [ Red Lion Shaker Bottle = 10.00
- [ Cufflinks
  - 1 Pair = 10.00
  - 2 Pair = 15.00
  - 3 Pairs = 20.00

! V PRYN[ R\b` tRZ `

- [ Engineering Paper = 3.25
- [ Combination Lock = 5.00
- [ A glance at the hot guy/girl working at The Window = FREE

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**Faculty of Engineering  
TIMETABLE PLANNING FORM** **CRN Course Reference Number)**

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:30 01	8:30 04	8:30 01	8:30 04	8:30 01
9:30 02	10:00 05	9:30 02	10:00 05	9:30 02
10:30 03		10:30 03		10:30 03

11:30 06	11:30 09	11:30 06	11:30 09	11:30 06
12:30 07		12:30 07		12:30 07
	1:00 10		1:00 10	
1:30 08		1:30 08		1:30 08

2:30 11	2:30 14	2:30 11	2:30 14	11
3:30 12	4:00 15	12	4:00 15	12
4:30 13		13		13

5:30 16	5:30 17	5:30 16	17	
6:45	6:45			

7:00 E1 (Mon)	7:00 E2 (Tue)	E3 (Wed)	E4 (Thurs)	E6 (Sat AM)
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Course No.	Section No.	CRN	Course No.	Section No.	CRN

Please search the AURORA Student on-line Catalogue for alternate sections if needed.

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