
Department of Chemical and Materials Engineering

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2019 – 2020



UNIVERSITY OF
ALBERTA

Information for Graduate Students

Chemical and Materials Engineering

2019 – 2020

Disclaimer: All the information in this booklet is compiled on a best efforts basis and is believed to be correct at the time of publishing. In the event of a conflict between these rules and those stated in the calendar, the rules in the calendar shall have precedence. From time to time, rules and regulations change. It is the student's responsibility to be aware of the latest rules and regulations.

September 2019

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1. Welcome

Welcome to the Department of Chemical and Materials Engineering at the University of Alberta. On behalf of the entire academic staff, we hope that your studies will be rewarding.

Most new graduate students find that the first several weeks are demanding. If you experience any problems, you should consult with one of the graduate advisors shown in the list below, as they are here to assist you.

The graduate program assistants are also a valuable source of information and will assist you throughout your studies. The academic staff members are genuinely interested in meeting new graduate students - you are encouraged to introduce yourself to the academic staff.

The first part of this booklet gives general information, and the second part gives information about the various graduate programs and student responsibilities. **Every student should read this booklet in its entirety. Ignorance of rules and regulations is no excuse. In particular, pay special attention to your program requirements, since you will not be able to graduate if you have not met each of those requirements.**

2. Key Department Contacts

A listing of department staff with contact information can be found on the department website: <http://www.cme.engineering.ualberta.ca/en/FacultyStaff.aspx> The following are key department contacts:

Dr. Vinay Prasad - Associate Chair of Graduate Studies

Lily Laser, Mia Law, Amy Chow - Graduate Program Assistants

Dr. Natalia Semagina - Graduate Advisor for Chemical Engineering

Dr. Hao Zhang - Graduate Advisor for Materials Engineering

Dr. Ken Cadien - Department Chair

Sandra McFadyen – Assistant Chair (responsible for office space)

3. Administration Procedures

3.1 Student ID Card – ONEcard

After registration you can get your student ID card (ONE card), from the ONE card office located in 9104 HUB Mall. The ONE card contains your student number, picture and a barcode. This card allows the use of the libraries and the sports centre. For a description of the services available to you through the ONE card, please see their website: <http://www.onecard.ualberta.ca/>

3.2 Department Payroll

A copy of your STUDY PERMIT and SOCIAL INSURANCE NUMBER (SIN), when available, should be sent to payroll.operations@ualberta.ca.

If you do not have a social insurance number, please contact a Graduate Assistant for information on how to apply for one as soon as possible. (The procedure for this will vary depending on the information contained in your study permit). When ready, you will go to the following location to apply for your SIN:

CANADA PLACE #1440, 9700 Jasper Avenue, Edmonton (8:30 – 4:00 p.m.)

Take the Light Rail Transit system (LRT) to get to Canada Place. Board the train at University Station and alight at Churchill Station.

TD1 and TD1AB forms (these forms are optional) are available at the links below or in Appendix A (p. 26-29).

<https://www.canada.ca/content/dam/cra-arc/migration/cra-arc/E/pbg/tf/td1/td1-04-17e.pdf>
<https://www.canada.ca/content/dam/cra-arc/migration/cra-arc/E/pbg/tf/td1ab/td1ab-17e.pdf>

You may complete these forms (optional) and forward them to a Graduate Assistant.

A chequing account with a Canadian bank must be opened before you will receive payment from our department. Further banking information can be found in section 6.3. Your pay advice can be viewed using Beartracks.

Graduate Student Assistantship Information:

Graduate students will be paid twice a month.

All payments are made by direct deposit to the student's personal bank account. Students must set up direct deposit in Bear Tracks: <https://www.beartracks.ualberta.ca/>

For instructions on how to do this, see the Direct Deposit instructions at the link below or Appendix A (p. 23-25):

http://www.hrs.ualberta.ca/MyEmployment/~media/hrs/MyEmployment/BearTracks/Add_Direct_Deposit.pdf

Automatic Deduction of Outstanding Fees and Tuition

The University's payroll system **automatically** deducts outstanding tuition and fees from the paychecks of graduate teaching and research assistants one month after the start of Fall, Winter, Spring and Summer terms.

That is, any Fall tuition owing as of October 1 will be deducted from the student's October, November and December paychecks in **six** semi-monthly installments **to a maximum of 80% of your salary**. If there is tuition left owing at the end of the term, Financial Services will issue a statement letting you know the amount that is due in their office by a certain date.

Similarly, any Winter tuition owing as of February 1 will be automatically deducted from the student's February, March, and April paychecks in **six** semi-monthly installments.

Also, students will have automatic deductions from their paychecks in June, July and August. Deductions will occur twice a month.

Students cannot exempt themselves from this payroll deduction.

Full tuition for the Fall, Winter, Spring and Summer terms must be paid by the respective deadlines in order to have no fees deducted from your paycheck.

Note: The automatic payroll deduction is only taken from assistantship funding. Installments are not withdrawn from any scholarship funding students may be receiving.

Students must report all scholarships received to a Graduate Assistant.

3.3 Office Assignments

The Department will assign a desk for each student during the first semester. Office assignments are done by Sandra McFadyen. The necessary keys are issued by Marion Pritchard upon authorization by the research supervisor or the Department Chair. All students must pay a \$50.00 deposit and return a signed "New Employee/Student Information Form" before they will be given keys. Please inform Sandra McFadyen if you and your supervisor wish to make a desk/room change. Such changes must **NOT** be made without authorization.

3.4 Building Keys

The CME building is locked late each evening and all day on holidays (the building hours are posted on the main doors). To permit access to the building, each student can obtain a key. Submit forms to Marion Pritchard.

3.5 Personal Information

It is the student's responsibility to ensure that their personal contact information is updated with the University at all times. Students can change their contact information by accessing Bear Tracks: <https://www.beartracks.ualberta.ca/>. It is also the responsibility of the student to inform the Department of any changes to his/her **immigration status**.

3.6 Code of Student Behavior

The University's Code of Student Behavior states academic and non-academic offenses for which students will be sanctioned. Students should familiarize themselves with this code, which can be found on the website:

<http://www.governance.ualberta.ca/codesofconductandresidencecommunitystandards/codeofstudentbehaviour.aspx>. Students' attention is drawn in particular to the University's stand on plagiarism and harassment.

3.7 Parking and Automobile Regulations

Questions concerning parking privileges and use of automobiles on Campus should be directed to Parking Services. Their website is: <http://www.asinfo.ualberta.ca/ParkingServices>, and their office is located at 1-051 Lister Centre.

3.8 Laboratory Safety and Security

You are required to attend the Department Safety Seminar during your first semester. Information regarding the seminar will be distributed accordingly. Information on required safety certifications will be provided at this seminar. Please fill out the Working Alone form available on our website and return the signed copy to a Graduate Assistant:

<http://www.cme.engineering.ualberta.ca/FacultyStaff/Resources/Forms%20Cabinet.aspx>

On occasion, the department has experienced laboratory burglary. **Please ensure that your laboratory is locked when unattended, and all your personal belongings are locked up in a secure place at all times to prevent theft.**

3.9 Computer and Network Access

After you have finished your registration, it is necessary for you to complete an on-line form to ensure that you will be added to the department e-mailing lists and that you will have access to department computing resources. The URL for this form is:

<https://support.eche.ualberta.ca/forms/NewStudent/>

3.10 Medical and Dental Insurance

You will need to apply for Alberta Health Care Insurance. Locations are listed in this link: <http://www.health.alberta.ca/AHCIP/Registry-Agent-list.html>

The Graduate Student Association (GSA) has a dental/health plan to help with medical fees that are *not* covered by Alberta Health Care. The cost for this plan is included in your University fees. If you are covered by a comparable health or dental plan, you can opt out of the GSA plan by submitting proof of your equivalent coverage to the GSA at Triffo Hall. Full-time students are automatically re-enrolled into the dental/health plan each year. For more information, visit the GSA website:

<http://www.gsa.ualberta.ca/en/services/HealthAndDental.aspx>

4. University and Department Services

4.1 Mail Service and Mailboxes

Department mail for students are placed in a filing cabinet in the room next to reception on the 12th floor of the ICE building. There are 26 files, one for each letter of the alphabet. The letter corresponds to the first letter of your last name (eg.) all mail for Bill Jones would be placed in file J. Mail that does not have a proper mailing address will be placed inside a box (outlined in red) and this mail will be sent back if unclaimed after one month. All mail will be inserted into the appropriate file, except for large items, in which case an email will be sent indicating where it may be claimed. **All personal mail must be sent to a home address or post office box.**

4.2 Telephone

Public call boxes are located in various places. Supervisors may also provide a telephone handset in the lab space for students and research staff members to use. The prime purpose of these handsets is to allow convenient contact with local equipment and material suppliers; consequently, personal calls should be kept to a minimum during business / office hours.

4.3 Photocopiers and Fax Machine

The use of the photocopier and fax machine is restricted to office hours and care should be taken to use the equipment. You will need a PIN to access the photocopier. To obtain a PIN, you must have the permission of your supervisor.

*** The photocopiers / fax machine are to be used for university-related business only.**

Theses are **not** to be photocopied on department photocopiers.. Also be aware that the University of Alberta has contractual agreements regarding copyright infringement. You should not photocopy large portions of books, because this can constitute copyright infringement.

4.4 Department Forms

Many of the forms that you will need are available on our website:

<http://www.cme.engineering.ualberta.ca/FacultyStaff/Resources/Forms%20Cabinet.aspx>

4.5 Office Supplies

The department does **not** provide office supplies. They are your or your supervisor's responsibility.

4.6 Conference Rooms and Projector

The department conference rooms and the department computer and projector can be booked for research meetings and seminars through our website at: <http://bookings.eche.ualberta.ca/>

4.7 Ordering and Shipping Supplies

Ensure that your name is included on the address label when ordering supplies. When a package is received in the department, an email will be sent to you to notify you of its arrival. The Department assumes no responsibility for the ordering or delivery of any supplies.

For any problems with delivery of packages, contact Supply Management Services. When having items shipped to the department, please add at least one full day to your estimated time of arrival for distribution from Supply Management Services. *All forms (i.e.: invoices, indent copies, purchase order copies, shipping forms, etc.) must be given to the department bookkeeper.*

Shipping of dangerous goods **must** be done with the supervision of the Department's safety officer.

4.8 Machine and Instrument Shops

The department has well equipped and staffed machine and instrument shops. Consult your supervisor about access to these facilities.

4.9 Purchasing

Equipment and supplies for teaching or research needs must be requisitioned on either indent forms (for internal university suppliers) or purchase requisition forms (external suppliers). The forms must be approved or signed by staff members with the appropriate signing authority. In all cases, all financial paperwork must be given to Sandra McFadyen.

4.10 CMEGSA

The Chemical and Materials Engineering Graduate Student Association (CMEGSA) provides new graduate student orientations, social and recreational activities, representation of graduate students, seminar refreshments, etc. Visit their website for more information:

<http://cmegsa.wixsite.com/ualberta>

4.11 GSA

The Graduate Students Association (GSA) is located at 1-37 Triffo Hall. It provides official representation for graduate students via committees, councils and the media; promotes the general welfare of members; serves and furthers the intellectual, cultural, social, and recreational activities of its members; and represents all academically employed graduate students. For more information on their services, please see: <http://www.gsa.ualberta.ca/>

4.12 Housing

The University's Residence Services rents housing in several residences, including Graduate Student Residences, HUB International and housing for married students in Michener Park. Their website is: <http://www.residence.ualberta.ca/>

The Students Union Housing Registry maintains lists of rooms and apartments in the city: <http://www.rentingspaces.ca> Neither the University nor the Department assumes responsibility for finding accommodation for students; that is the student's responsibility.

4.13 University Student Services

University Student Services is comprised of nine units, which are located in the Students' Union Building: Academic Support Centre, Sexual Assault Centre (SAC), Career and Placement Services (CaPS), Student OmbudService (SOS), Native Student Services (NSS), Student Counseling Services (SCS), Student Financial Aid and Information Centre (SFAIC), Services for Students with Disabilities (SSD), and University Health Centre (UHC). For more information, see: <https://www.ualberta.ca/provost/dean-of-students/services>

4.14 Centre for Teaching and Learning

The Centre for Teaching and Learning provides opportunities for graduate students to develop their teaching skills through theory classes and teaching experience. More information on this program is available at: <https://www.ualberta.ca/centre-for-teaching-and-learning/>

4.15 University Health Centre

The University of Alberta Health Centre is located on the second floor of SUB. More info about Health Centre is available here: <https://www.ualberta.ca/services/health-centre>
A pharmacy is located in the SUB and is open Monday – Friday (8:30 am - 4:30 pm).

4.16 Student Counseling Services

Student Counseling Services (SCS) offers psychological counseling to current students. There is no charge for individual sessions with counselors. They provide accessible professional psychological services to students who may be experiencing on-going or situational personal, academic, or career-related difficulties. For more info please visit: <https://www.ualberta.ca/current-students/counselling>

5. Services for International Students

5.1 University of Alberta International

The University of Alberta International Centre provides excellent services and programs to both Canadian and foreign students, such as orientation programs and information on study abroad opportunities. <http://www.international.ualberta.ca/>

5.2 International Student Orientation

International students are encouraged to participate in the international orientation seminar held at the International Centre.

5.3 English Language Training

Students whose speaking and/or writing skills need improvement are encouraged to acquire basic skills through formal courses. The International Centre has information on language schools and individual tutors. English language training courses are also offered by:

- Faculty of Extension - <https://www.ualberta.ca/extension>
- Student Success Centre - www.studentsuccess.ualberta.ca

- Continuing Education through Metro Community College - <http://www.metrocontinuingeducation.ca/>
- MacEwan University - www.macewan.ca
- Norquest College – www.norquest.ca

5.4 *Renewing your study permit*

If you want to extend your stay in Canada as a student, please visit these two websites:
<https://www.ualberta.ca/international-student-services/money-insurance-permits-guide/renew-your-study-permit>

<https://www.canada.ca/en/immigration-refugees-citizenship/services/study-canada/extend-study-permit.html>

Check the expiry date on your study permit and make sure you apply well **before** that date.

If you apply for renewal of your study permit, and the permit expires before you receive an answer, you can continue to study in Canada under the same conditions until you receive a decision. Please bring a copy of your payment receipt as well as the Canada Post receipt to a Graduate Assistant. The receipts should list the date of the application as well as your full legal name.

You should apply to renew your study permit if you intend to travel outside Canada and your permit will expire while you are travelling. You cannot extend your study permit beyond the expiry date on your passport. If your study permit has expired and you have not applied for an extension, you must leave Canada.

6. General Information

6.1 *Transportation*

The City of Edmonton has a public transportation system. The LRT (Light Rail Transit) system offers convenient transportation from the University to downtown Edmonton (NAIT /Royal Alex Hospital/Kingsway), Rogers Place, Commonwealth Stadium, communities in northern Edmonton, as well as links to South Campus (including the Saville Sports Centre), Southgate Mall and Century Park. The bus system also offers transportation to and from the University. A listing of routes and schedules is available at <https://www.edmonton.ca/edmonton-transit-system-ets.aspx>

All students are eligible to receive a U-pass when they receive their ONEcard, which allows use of the ETS systems during the periods September to April. Some students will also receive a Spring/Summer U-pass for the months of May to August. For more information, see: <https://www.ualberta.ca/upass>

6.2 *Alberta Health Services ‘Health Link’*

‘Health Link’ is a 24 hour a day, seven days a week telephone health advice service answered by registered nurses that anyone in Alberta can call. They provide Albertans with a greater role in managing their own health so they can make informed decisions about their health and what resources to use *from their own homes*. Anyone with a health concern can call:

811 (for out-of-province or internet phone users, call 1-866-408-5465) to get health advice or information 24 hours a day, seven days a week. <http://www.albertahealthservices.ca/>

6.3 Banking

All students must open a chequing account with a recognized Canadian banking institution to receive their pay. Listed below are some banks that you may be interested in opening your chequing account at:

[TD Canada Trust](#)

[RBC Royal Bank](#)

[CIBC](#)

[Bank of Montreal](#)

After you have opened a chequing account, you will need to enter your banking information and set up Direct Deposit in Bear Tracks: <https://www.beartracks.ualberta.ca/>

***Direct Deposit Instructions** are available at:

<https://www.ualberta.ca/faculty-and-staff/pay-tax-information/direct-deposit>

7. Organization and Administration of Graduate Programs

7.1 Degrees Offered

The Department of Chemical and Materials Engineering offers the degrees of **MSc** and **MEng** in Chemical Engineering, Process Control, Materials Engineering, and Welding Engineering. It offers **PhD** degrees in Chemical Engineering, Process Control, and Materials Engineering. Students who initially register in a given degree program require department approval before changing to another program.

7.2 Program Requirements

The Faculty and Departmental requirements for graduate programs are given in the University of Alberta Calendar. Each graduate student is responsible for being familiar with all regulations and requirements specified therein. The calendar can be found on the website: <http://calendar.ualberta.ca/index.php?catoid=6>. If flexibility within these requirements is permitted, it is left to the Department of Chemical and Materials Engineering to supplement and interpret these regulations pertaining to graduate students in the Department. Each graduate student is responsible for being familiar with the University's major deadlines, found in the Academic Schedule of the University calendar.

7.3 Registration

Registration in the Faculty of Graduate Studies and Research (FGSR) is required immediately for students entering at the beginning of September or January. Course registration should be completed no later than the end of the first week of classes. You should consult your graduate advisor or supervisor for advice on registration.

Students must be registered full-time in 9 credits each term (Fall and Winter) to be eligible to receive funding from the department. Full-time students will be registered for 6 credits in Spring/Summer by the Faculty of Graduate Studies and Research (FGSR). Such students must maintain full-time registration until their degree is finished, regardless of whether they are working on the University campus or not.

It is your responsibility to be aware of all deadlines in the University of Alberta Calendar pertaining to registration, **especially the add/drop deadlines**. Registration can be completed through the Bear Tracks web-based system at <https://www.beartracks.ualberta.ca/> Please see section 13 of this handbook for further registration information. If you have any difficulties registering, please see a Graduate Assistant for assistance.

7.4 Seminars

The Department offers a distinguished seminar series, called the *D.B. Robinson Distinguished Seminar Series*, of which the premier event is the ICI lectures. Other seminars may be offered from time to time. Attendance at a minimum of 75% of these seminars per academic year is **required** by all **MSc** and **PhD** students throughout the duration of their program. Students starting their program in January must attend at least three of these seminars in their first term. Attending these seminars is optional but recommended for **MEng** students. Students who miss the attendance requirement for the D.B. Robinson series will be assigned additional work.

Seminar notices will be e-mailed to the department and posted on the departmental website.

Notices of interest to graduate students and official notices are posted on the bulletin board at several locations in the department.

7.5 Presentation requirement

All MSc and PhD students are required to deliver **one** public presentation on their research. The approval of an external conference presentation to satisfy the seminar requirement is at the discretion of the Associate Chair (Graduate). A presentation made at the Faculty of Engineering Graduate Research Symposium (FEGRS) qualifies towards the presentation requirement. MSc students can request permission for presentations that were made at venues other than conferences and FEGRS to be considered for meeting the presentation requirement, but approval of those requests is at the discretion of the Associate Chair for Graduate Studies. The form for requesting permission is available in the forms cabinet on the CME department's web site (<https://www.ualberta.ca/chemical-materials-engineering/faculty-and-staff/resources/forms-cabinet>).

7.6 Professional development requirement

Engineering graduate students must undertake a minimum 12 hours professional development over the course of their degree. As of Fall 2017 the Faculty of Engineering requires training in preparation of a student's Individual Development Plan (IDP) and 4 hours of career development workshops provided by the Faculty of Engineering. In addition, 8 hours are required by the Faculty of Graduate Studies and Research (FGSR).

As of Fall 2017, Engineering Graduate students must meet their Professional Development through the completion of two virtual courses available through e-class: ENG GRAD PD 01 and ENG GRAD PD 02.

Step 1: ENG GRAD PD 01 (IDP and 4 Hours Faculty of Engineering Related Workshops)

Students can self enroll in this virtual course at the following link:

<https://eclass.srv.ualberta.ca/enrol/index.php?id=40832>

Information on ENG GRAD PD 01 (Faculty of Engineering IDP and 4 hours PD requirement) can be found at:

<https://www.ualberta.ca/engineering/student-services/academic-support/graduate-studies-professional-development>

ENG GRAD PD 01 is an eClass course to be used for submitting the signed review documents of the student's Individual Development Plan (IDP), and to track participation in the selected Professional Development sessions, focusing on engineering-relevant career skills. More information is available at the following links:

Individual Development Plan (<https://www.ualberta.ca/graduate-studies/professional-development/professional-development-requirement/individual-development-plan>)

Link to Engineering Sessions and Workshops (<https://www.ualberta.ca/engineering/student-services/academic-support/graduate-studies-professional-development>)

Step 2: ENG GRAD PD 02 (Minimum of 8 Hours FGSR Professional Development)

Students can self enroll in this virtual course at the following link:

<https://eclass.srv.ualberta.ca/enrol/index.php?id=40709>

Information on ENG GRAD PD 02 (FGSR 8 hours PD requirement) is available at:
<https://www.ualberta.ca/graduate-studies/professional-development>

ENG GRAD PD 02 is a system to track verifiable Professional Development offered by the Faculty of Graduate Studies and Research (FGSR) conference workshops, NAIT courses, etc. Verifying 8 or more hours of Professional Development activities must be documented in ENG GRAD PD 02.

Link to FGSR Sessions and Workshops (<https://cloudfront.ualberta.ca/-/media/gradstudies/professional-development/pd-resources/2018-08-03-pdopportunititesguide.pdf>)

Step 3: Completion and Submission to Department

Once students have completed all the activities for both PD 01 and PD 02, they will need to fill out the completion forms and have them approved. The completion forms for ENG PD 01 and ENG PD 02 can be found in the CME Department's forms cabinet (<https://www.ualberta.ca/chemical-materials-engineering/faculty-and-staff/resources/forms-cabinet>)

Both forms will need to be approved and signed off. For **MEng** students this would be their Supervisor/ Career Mentor and also the Graduate Associate Chair. Once signed, the student can then submit the completed PD/ IDP to a CME graduate assistant.

M.Sc. or **Ph.D** students would first have their research/ supervisor to sign before bringing the PD/ IDP Forms to the Graduate Associate Chair. Once signed by both parties, the student can then submit your completed PD/ IDP to a CME graduate assistant.

Note that the Individual Development Plan (IDP) must be submitted within 12 months of starting the program for M.Sc. and M.Eng. students, and within 18 months of starting the program for Ph.D. students.

8. Masters Programs

8.1 MSc Program

The requirements for the MSc degree consist of successful completion of course work, participation in seminars, completion of the Ethics course ENGG 600, completion of the professional development requirement (for students joining on or after Fall 2016) and a presentation of their work at a conference or an equivalent venue (see section 7.5).

In addition, MSc students must successfully defend their thesis which embodies the results of independent research at the end of their program (MSc final oral exam). Please refer to the document on Exam Procedures in the Forms cabinet of the CME Department's web page for details on the procedures for the MSc final oral examination.

All MSc students are also encouraged to take on one Teaching Assistantship or one Grader position as part of their program. MSc students must complete all of the requirements within **four years** from the time they first register as graduate students.

The MSc minimum course requirement is four courses plus the Ethics course. At least two courses must be 600 or higher level courses in the Department of Chemical and Materials

Engineering (Also see section 10.2 for courses that are equivalent to 600 level courses in CME). The balance of the courses shall be at the 500 or higher level in the Faculty of Engineering, or at the 400 or higher level in a Science Department. Students in Materials Engineering and Welding Engineering must take **MAT E 640**, which counts as one of the two 600 level courses. Reading or independent study courses will **not** count towards the total course requirement. Science courses at the 400 level must be approved by the supervisor and Associate Chair (Graduate).

8.2 MEng Program

The MEng program is a course-based program designed primarily for the working professional. MEng programs must be completed within **six years** of initial registration.

The MEng course requirement is eight one-term courses, plus the project course (CME 900) and the ethics course (ENGG 600). In addition, students must fulfill the professional development requirement. At least four of the eight courses must be taken from the Department of Chemical and Materials Engineering, of which at least three must be 600 or higher level courses (also see section 10.2 for courses that are equivalent to 600 level courses in CME). The balance of the program consists of courses at the 500 or higher level in the Faculty of Engineering, or at the 400 or higher level in a Science Department. The course program must be approved by the Associate Chair (Graduate).

Under normal circumstances, it should be possible to complete the project within four to six weeks of concentrated work. The project is to be selected and then completed under the supervision of a faculty member in the CME department, with the work being recorded in a report which is evaluated to determine if the student has passed or failed. Students are to select the topic for the project in consultation with the prospective supervisor before the term in which they register for CME 900. The project topic may involve research investigations, design calculations or in some cases, a literature review. In the term in which they register for CME 900, students must complete the work and a report on the same, and obtain and incorporate the supervisor's feedback on the report. The completed report is evaluated by the supervisor and another person at arm's length (who is chosen by the Associate Chair for Graduate Studies). The entire process is to be completed in the same term.

The guidelines for the report are: the main body is expected to be between 5000 and 10000 words, and the report is to be written in 12 point font (Arial/Calibri/Times New Roman) with double line spacing and 1 inch margins all around. Ideally, the front matter would consist of an executive summary, a table of contents, a list of figures/tables and nomenclature/definitions. The main body of the report would include an introduction, a literature review/foundational information, a problem statement, methods, results and discussion, conclusions/recommendations and references.

9. PhD Programs

The requirements for the PhD degree consist of successful completion of course work, participation in seminars, completion of the ethics course ENGG 600, and completion of the professional development requirement (for students joining on or after Fall 2016). In addition,

PhD students must successfully defend their thesis which embodies the results of independent research at the end of their program (PhD final oral exam). Please refer to the document on Exam Procedures in the Forms cabinet of the CME Department's web page for details on the procedures for the PhD final oral examination.

Moreover, PhD students must have made a presentation on their work at a conference or an equivalent venue (see section 7.5). All PhD students are also encouraged to take on two Teaching Assistantship or three Grader positions as part of their program. PhD students must complete all the requirements within **six years** from the time they first register as graduate students.

9.1 Course Work:

The minimum course requirement is six one-term courses plus the ethics course (ENGG 600) and CME 600 (Introduction to research methods). Note that CME 600 must be taken by PhD students in their first year in the program. At least three courses must be 600 or higher level courses in the Department of Chemical and Materials Engineering (also see section 10.2 for courses that are equivalent to 600 level courses in CME). The balance of the courses shall be at the 500 or higher level in the Faculty of Engineering, or at the 400 or higher level in a Science Department. Students in Materials Engineering must take **MAT E 640**, which counts as one of the three 600 level courses. Reading courses will **not** count towards the total course requirement. The final course program for such students shall be approved in writing by the supervisory committee and is subject to final approval by the Associate Chair for Graduate Studies.

9.2 PhD Program Following the Completion of an MSc

A student admitted to the PhD graduate program in the Department of Chemical and Materials Engineering **may** be eligible for a Department course exemption if the student has previously completed a recognized graduate degree program at an accredited university. The number of courses will be evaluated and approved on a case-by-case basis. The criteria that must be met before Departmental course or course unit exemption will be considered are:

- (1) The supervisory committee and Department agree that the course(s) in question is (are) applicable to the student's degree program, and that an equivalent course exists at the University of Alberta
- (2) The student achieved a grade acceptable to the Department
- (3) The student must not have completed or intend to complete a course of identical course content at the University of Alberta

The student's course performance at the previous university and the University of Alberta will be considered prior to departmental approval of course exemptions. To request a course exemption, the **student's supervisory committee** (not the student) should submit a written request to the Associate Chair (Graduate) with the following information for each course to be considered:

- | | |
|------------------------------|----------------------------------|
| (1) Course Number | (2) Course Description |
| (3) Course Content | (4) Course Textbook |
| (5) U of A Course Equivalent | (6) Grade achieved in the course |

The request should be submitted on the form provided for this purpose **after the completion of at least two academic terms and the successful completion of the candidacy exam**. The student's academic record will be evaluated and a written decision to the request will be distributed to the student and supervisor, and a copy placed in the student's file. It is the responsibility of the student with the advisement of the student's supervisor or supervisory committee to ensure all academic course requirements are met prior to graduation.

Normally, FGSR permits a maximum of two courses to be exempted from the program. In exceptional cases, an exemption exceeding two courses may be granted, however, in all cases **at least two graduate courses must be taken at the University of Alberta.**

The final decision shall rest with the Associate Chair for Graduate Studies.

9.3 Candidacy Examination:

The Faculty of Graduate Studies and Research requires that a PhD student pass an oral Candidacy Examination. Please refer to the document on Exam Procedures in the Forms cabinet of the CME Department's web page for details on the procedures for the PhD candidacy examination.

The Department of Chemical and Materials Engineering (CME) has specific regulations:

- (a) The Candidacy Examination must be held within **16 months of initial registration** in the PhD program for full-time students. Part-time PhD students must complete the Candidacy Examination successfully by 3 years of initial registration. A different (shorter) deadline will be imposed in cases where the student has entered the doctoral program through a change of category from a Masters program in the CME Department (see below). No financial support from the department will be available to students who do not meet this deadline. Departmental support also includes TA and RA appointments, as discussed in a following section. Students failing to meet the deadline without compelling extenuating circumstances may also be required to convert to the MSc program.
- (b) Full-time PhD students shall submit a copy of a Research Proposal within **13 months of initial registration**. The Associate Chair for Graduate Studies will provide details about the format for the submission at the time. Currently, submissions are to be made electronically as a pdf document through a Google form created for the purpose.

A student who is enrolled in the MSc program and subsequently converts (Change of Category) to the PhD program shall be subject to the following rule:

-The candidacy report shall be submitted within one month of the effective date of program transfer, or 13 months from the date of first registration in the MSc program, whichever is later.

-The candidacy exam shall be held within four months of the effective transfer date or 16 months from the date of first registration for the MSc, whichever is later.

Exceptions to this timeline for students converting to the PhD program can only be made by the Associate Chair for Graduate Studies.

A student who wishes to be admitted directly into a PhD program after graduation from a BSc program is required to have first class standing (G.P.A. of 3.5 out of 4 at the University of Alberta, or equivalent).

Candidacy report (i.e. research proposal) guidelines: The research proposal should be printed in 12 point font and not exceed 20 pages in length (excluding the table of contents and list of references). While there isn't a specific format required, it is highly recommended to include sections on motivation, background/literature review, hypothesis/objectives, methods, results, results and proposed work.

9. Thesis formatting guidelines

The FGSR minimum thesis formatting guidelines are available at <https://cloudfront.ualberta.ca/-/media/gradstudies/current-students/academicrequirements/thesisrequirementandpreparation/2016-03-29-fgsrminimumthesisformattingrequirements.pdf>, and these are applicable to all theses (MSc and PhD) in the CME Department. An important point to note is that a preface is required in all cases where any part of the work included in the thesis is collaborative.

If you choose to write your thesis in a 'paper-based' format, i.e. if the thesis contains published material, the following guidelines apply in the CME Department:

- Only peer-reviewed journal articles and peer-reviewed conference publications are recognized as suitable publications for inclusion in the paper-based format
- A paper-based thesis can include published, accepted and submitted papers, as long as at least one publication is published or accepted
- The student must be the first or second author in each publication that is included in the paper-based thesis
- It is acceptable for a paper-based thesis to have some material that is not a publication; normally, this is restricted to introductory material, conclusions and discussions on future work, and reviews of the literature pertinent to the thesis topic and descriptions of the research methods used that provide more detail than is present in the included publications.
- There is no specific requirement on connecting text required to link the papers included in the thesis beyond the introduction.
- For each publication included in the thesis, if the student has reason to believe that it may be included in another student's thesis in the future or that it has been included in another student's thesis in the past, this must be indicated in the preface along with the description of each author's contributions.

11. Course Inclusion and Exclusion

11.1 Course Exclusion List (all programs)

Regardless of any other statement made within this document, the courses in the following list shall **not** be counted as meeting part of the requirement for completion of graduate courses. The following list is not all inclusive and other courses may not be valid. Students are reminded that all course programs are subject to the final approval of the Associate Chair for Graduate Studies.

- INT D 561 Energy and Environment Course (Focus on Oil Sands)
- Reading or independent study courses

11.2 Course Inclusion List (all programs)

For the purposes of assessing program course requirements, certain courses from other departments are considered to be equivalent to courses in CME at the 600 level. These are: ECE 540, ECE 560, ECE 561, ECE 760, ECE 662, ECE 664, ECE 665, ENGM 646, MECE 615.

Also, the courses ECE 450 & ECE 457 are equivalent to 500 level courses in Engineering for the purpose of assessing program course requirements.

12. Performance

All graduate students are required to maintain a satisfactory standard of performance to remain in the graduate program. The interpretation of satisfactory academic performance in the MSc and PhD programs in the Department of Chemical and Materials Engineering is as follows:

12.1 General Academic Performance

The cumulative grade point average (GPA) used in evaluating a student's performance for MSc and PhD programs refers to a weighted (by term hours) average of the grades in all courses in the student's graduate program. The original grade in a failed course which has been repeated or replaced by an alternate course is included in calculating the GPA.

The pass mark in any course taken as part of the program is C+. A failing grade is defined as C or lower for graduate students. All failed courses must be either repeated or replaced by an alternate course acceptable to the Department. It is required that the cumulative grade point average (GPA) at the time of graduation for all courses in the program be not less than 2.7.

A course that is not part of the course requirements should be declared as extra to the degree at the time of registration. Please fill out the "Course Extra to Degree" form available on the FGSR website, obtain your supervisor's signature, then hand in to a Graduate Assistant.

<http://www.ualberta.ca/graduate-studies/about/resources-for-faculty-and-staff/forms-cabinet>

12.2 Specific Academic Performance

If the GPA is less than 2.7 after one term of graduate study, the student will be placed on academic probation. A student placed on probation may remove this status by performance in the next term such that the GPA for the course work of both terms is at least 2.7. Being on probation means that students are permitted to stay in the graduate program even though their most recent record is below the standard normally required by the Department. Graduate students are not permitted to stay on probation for two consecutive terms. **Students on academic probation do not receive financial support from the Department.** If the GPA after two terms of graduate study is less than 2.7 the student may be required to withdraw.

Students may also be placed on probation at any point in their program if their GPA falls below 2.7.

12.3 Satisfactory Research Performance

Graduate students are expected to maintain satisfactory research performance whether they are appointed as graduate research assistants or through a graduate research assistantship fellowship. The graduate student assistantship collective agreement specifies the procedure for dealing with unsatisfactory performance.

13. Financial Assistance

Full time graduate students admitted to the MSc and PhD programs are offered financial support. The financial terms are outlined in the department funding letter when students are admitted.

Financial support from university funds provided for graduate students is distributed on an annual basis by the Department. Eligible students who qualify for support cannot be guaranteed that this type of financial support will be maintained beyond the periods defined below, regardless of academic performance. Satisfactory progress in course work and research should normally result in continued Department support at approximately the same rate of pay for the following periods:

-For **MSc** candidates, up to **24 months** after initial registration in the Faculty of Graduate Studies and Research;

-For **PhD** candidates, up to **48 months** after initial registration in the Faculty of Graduate Studies and Research.

Students should recognize that a work week of 40 hours will normally not be adequate to complete an advanced degree within the above time frame.

Provided that you are making satisfactory progress towards the completion of your degree, you ***may*** receive funding until you complete your studies and research (i.e. beyond the period listed above). The decision on this matter rests with your supervisor. Your appointment in the Department as a graduate student is a full-time responsibility. Therefore, it is expected you will devote all of your time towards your studies. The Department or your supervisor must be notified before you accept additional employment, as this may affect the level of funding you receive from the Department.

The minimum stipends for graduate students are \$22,000 per annum for Canadian citizens/permanent residents and \$25,000 for international students on student visas.

The difference in the funding levels is to partially offset the higher tuition fees that students on student visas are required to pay. Note that these amounts include, but are not limited to, income from all sources, including scholarships, bursaries, teaching and research assistantships, fellowships and external funding agencies, including governments and industry.

The maximum amount of graduate student funding is \$35,000 per annum (for Canadian citizens/permanent residents) or \$38,000 per annum (for international students), when any part of the funding comes from trust funds (i.e. supervisor's research funds). Of this amount, a maximum of \$30,000 can be from the supervisor's research funds.

Payments from the following sources are used to determine salary minimums:

- Teaching Assistantships
- Grading Assistantships
- Scholarships
- Supervisor Support

It is the responsibility of the student to report all scholarships received to the graduate assistants.

13.1 Scholarships and Fellowships

Major scholarships and fellowships are usually tenable from September 1. Payments will be made monthly, in advance, i.e. on September 1 for the month of September. Holders of scholarships and fellowships are not entitled to remission of fees unless explicitly stated under the terms of the award. On occasion, scholarship stipends may be augmented with part-time graduate appointments but only to the extent permitted by the scholarship regulations applicable and by the availability of university funds.

Non-scholarship support may be provided from university funds to registered graduate students in return for specific duties during the academic year as follows:

13.2 Graduate Assistantships

At the time of writing of this document, graduate assistantships include graduate teaching assistantships (GTAs), graduate research assistantships (GRAs) and graduate research assistantship fellowships (GRAFs). Definitions and duties for each of these are laid out in the GSA agreement (<https://cloudfront.ualberta.ca/-/media/hrs/my-employment/agreements/graduate-student-assistanship-agreement.pdf>). The assignment of GTA, GRA and GRAF appointments is made on the basis of academic qualifications and relevant training and experience.

Teaching assistantships (TAs), including TA and Grader appointments, are awarded by the department to graduate students who either have clear potential or demonstrated ability to perform well in the classroom. TAs assist a faculty member in teaching and may be responsible for portions of class development, seminar preparation and delivery, and holding office hours to answer student questions.

Graders/markers are primarily responsible for marking assignments in a timely fashion and maintaining a grade book for the recording of marks. The specific responsibilities for TA and Graders for each course are determined at the beginning of the term by the faculty instructor. The appointment is usually for one academic term, and exceptional students may be offered additional teaching assistantships for subsequent terms.

GRA appointments are made for the student to assist in the faculty member's academic research, while GRAF appointments are a form of financial assistance provided to graduate students to allow them to focus on their education and training, as it relates to their own thesis.

14. Registration

All full-time students must maintain full-time registration in each of the Fall & Winter terms and register 6 credits in Spring/Summer until they finish their degree.

Full-time registration is defined as a minimum of 9 credits per term for Fall and Winter terms. Students are not permitted to register as part time students, unless they were initially admitted with part time status.

If a student wishes to withdraw from a course after the registration deadline, they must complete a withdrawal form, which can be obtained from a Graduate Assistant.

Also, because a student must be registered full-time, an add/delete form with registration in Thesis 90X will also be sent to the FGSR with a memo from the Department requesting that this course be added to the student's transcript.

This means that the student will be obligated to pay for the course that they have withdrawn from **as well as** the additional credits that must be added for them to maintain their full-time status (9 CR).

Questions concerning the organization and administration of the programs which are **not** covered in this booklet or in the Calendar should be directed to the Graduate Assistants.

15. Graduate Ethics Training

Ethics and academic integrity training is mandatory for all newly-admitted University of Alberta graduate students who started their program on or after September 1, 2004.

For students who entered prior to Sept. 2006, ethics training consisted of:

1. a web-based course offered by the Faculty of Graduate Studies and Research (FGSR) (equivalent to five hours of training); and/or
2. department-based workshops, seminars, tutorials, etc.

**** Students admitted after September 2006 must take and pass the course ENGG 600.**

ENGG 600 is offered each Fall & Winter term and is worth 0.5 CR.

16. Professional Engineer (PEng) status

To practice engineering in the province of Alberta, you must be a Professional Engineer (PEng). All the information needed to obtain your PEng license can be found on the APEGA website: www.apega.ca

Please note: Completing your MSc or PhD degree does not guarantee that you have met all the requirements for PEng status. It is important to read the APEGA website to acquire

information about all the requirements.

17. Copies of Thesis

Arrangements and expenses for thesis preparation, including typing, production of photographs and tables, and duplicating are the responsibility of the student.

Thesis are to be submitted in electronic form following the rules posted on the FGSR website. Instructions regarding thesis format and methods of thesis reproduction are available on the FGSR website:

<https://www.ualberta.ca/graduate-studies/current-students/academic-requirements/thesis-requirement-and-preparation>

The student and/or the supervisor may desire bound copies for their personal libraries.

18. Checking Out

At the conclusion of your studies, you must return all equipment and supplies (unless directed otherwise), keys, tools, etc., that you have used. In particular, irreplaceable items such as bound theses or books must be returned. All garbage and other waste must be disposed of properly and safely.

An “Exit Form” must also be completed and returned to the Graduate Assistants after you have cleared out your space.

All keys must be returned to Marion Pritchard. After an inspection of your assigned space is completed, the key deposit will be returned. Please note that it is your responsibility to ensure that your assigned space is left clean for the next occupant.