

# GRADUATE STUDIES HANDBOOK

September 2023–August 2024



Welcome to the Department of Civil and Environmental Engineering and the School of Mining and Petroleum Engineering at the University of Alberta!

You are joining one of the best engineering departments in Canada to benefit from a true spirit of cooperation between engineering education and industry. The insight and knowledge shared between professors and students has inspired new ideas and resulted in more excellent research learning opportunities.

We hope your studies will be rewarding and wish you great success in your personal, academic, and professional life.

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# 1. Introduction

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This handbook contains information specific to the graduate programs offered in the Department of Civil and Environmental Engineering and the School of Mining and Petroleum Engineering. Graduate students must make themselves aware of the contents of the graduate portions of the University of Alberta Calendar (linked below) and the Graduate Program Manual from the Faculty of Graduate Studies and Research (**FGSR**, also linked below). **If there is a discrepancy between the information presented here and that contained in the Calendar, the Calendar takes precedence.**

## University of Alberta Calendar:

[calendar.ualberta.ca](http://calendar.ualberta.ca)

## FGSR Graduate Program Manual:

[ualberta.ca/graduate-studies/about/graduate-program-manual/index.html](http://ualberta.ca/graduate-studies/about/graduate-program-manual/index.html)

# 2. Important Contacts and Information

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## 2.1 Graduate Program Contacts

### Graduate Program Advisors

Ms. Ellie Kim – 7-385 Donadeo ICE  
Ms. Arlene Figley – 7-389 Donadeo ICE  
Ms. Trina Catral – 7-387 Donadeo ICE  
Ms. Christina Ezekowitz – 7-381 Donadeo ICE  
Email: [cgradvis@ualberta.ca](mailto:cgradvis@ualberta.ca)

### Department Address

Department of Civil & Environmental Engineering  
School of Mining & Petroleum Engineering  
7-207 Donadeo Innovation Centre for Engineering (ICE)  
Edmonton, AB, CANADA T6G 1H9

### Associate Dean, Graduate Students (CEE/MP)

Dr. Zaher Hashisho  
Office: 7-241 Donadeo ICE  
Email: [ad.ceegrad@ualberta.ca](mailto:ad.ceegrad@ualberta.ca)

### Department Reception

7-203 Donadeo ICE  
Phone: (780) 492-4235  
Email: [civeinfo@ualberta.ca](mailto:civeinfo@ualberta.ca)

### MEng Academic Advisor

Dr. Yuntong (Amy) She  
Office: 7-259 Donadeo ICE  
Email: [civmeng@ualberta.ca](mailto:civmeng@ualberta.ca)

### Website

[ualberta.ca/engineering/civil-environmental-engineering](http://ualberta.ca/engineering/civil-environmental-engineering)

## 2.2 Group Graduate Coordinators

Individual research groups within the Department enjoy a certain level of autonomy in setting their procedures; there may be variations between groups. Listed below are the graduate coordinators for each of these groups. If you have questions about the program, please contact the appropriate group graduate coordinator.

### Construction Engineering and Management

Dr. Vicente Gonzalez  
6-289 Donadeo ICE  
[vagonzal@ualberta.ca](mailto:vagonzal@ualberta.ca)

### Geotechnical Engineering

Dr. Michael Hendry  
6-226 Donadeo ICE  
[hendry@ualberta.ca](mailto:hendry@ualberta.ca)

### Petroleum Engineering

Dr. Hassan Dehghanpour  
6-279 Donadeo ICE  
[dehghanpour@ualberta.ca](mailto:dehghanpour@ualberta.ca)

### Transportation Engineering

Dr. Stephen Wong  
6-269 Donadeo ICE  
[sdwong1@ualberta.ca](mailto:sdwong1@ualberta.ca)

### Cross-Disciplinary Studies

Dr. Qipei Mei  
6-263 Donadeo ICE  
[qipei@ualberta.ca](mailto:qipei@ualberta.ca)

### Environmental Engineering

Dr. Yaman Boluk  
7-273 Donadeo ICE  
[yaman@ualberta.ca](mailto:yaman@ualberta.ca)

### Mining Engineering

Dr. Yashar Pourrahimian  
6-243 Donadeo ICE  
[pourrahi@ualberta.ca](mailto:pourrahi@ualberta.ca)

### Structural Engineering

Dr. Yong Li  
6-259 Donadeo ICE  
[yong9@ualberta.ca](mailto:yong9@ualberta.ca)

### Water Resources Engineering

Dr. Yuntong (Amy) She  
7-259 Donadeo ICE  
[yshe@ualberta.ca](mailto:yshe@ualberta.ca)

### MEng Academic Advisor *(for all MEng students)*

Dr. Yuntong (Amy) She  
7-259 Donadeo ICE  
[civmeng@ualberta.ca](mailto:civmeng@ualberta.ca)

## 2.3 Graduate Student Resources

The University offers a variety of support services for graduate students including funding, international services, professional development, timelines, and wellness. Below are a few resources to access information, support, and services you will need to navigate your university journey, and further information can be found on our Department [Graduate Student Resources](#) page.

1. [Welcome to Grad Life](#)
2. [FGSR](#) supports every aspect of your graduate student experience and offers essential support services throughout your grad career: admissions, funding, scholarships, teaching preparation, professional development, academic record keeping, thesis support, and convocation.
3. [International Student and Visitor Services](#) has many resources for international students to prepare for study abroad, including [immigration FAQs](#) and a [new student arrival checklist](#), along with information on [study permits](#), [working in Canada](#), and [banking](#).

4. Your acceptance letter contains any admission conditions, and FGSR collects and verifies any admission condition documents. If you have any questions or concerns on admission condition documents submission, you should contact FGSR directly at [grad.admissions@ualberta.ca](mailto:grad.admissions@ualberta.ca).
5. Visit the [Staff Service Centre](#) for employment related inquiries (direct deposit, paycheques, tuition remission, travel/expense claims, etc.)

## 2.4 Desks and Offices

Graduate students will be assigned desks following the Civil and Environmental Engineering (CEE) Office Space Policy. Important points of this policy are outlined below.

- Graduate students in MSc and PhD programs will be assigned desks according to the policy. Graduate students in the MEng program are not eligible for office space.
- Graduate students may be housed in NREF if available; otherwise, space is open in designated areas on the 6th floor of Donadeo ICE (6-244, 6-361, and 6-362).
- Office space in NREF is managed by research programs. A delegate of these groups is responsible for assigning these offices.
- Office space in Donadeo ICE is managed by the Department. All requests for space are to go through the Administrative Assistant to the Chair. Please contact [civeinfo@ualberta.ca](mailto:civeinfo@ualberta.ca) for more information.
- If no space is available, all requests for graduate student office space will be added to a waiting list, with priority given to PhD students.

## 2.5 Building Access and Keys

Some spaces in Donadeo ICE and NREF are accessible to authorized personnel only by using keys or a Proximity ONEcard. Office and laboratory keys are available to graduate students with a mandatory \$20 refundable deposit. A key requisition form can be picked up from the CEE-MP Reception desk at 7-203 Donadeo ICE, signed by your supervisor, and submitted back to the receptionist. Please allow one full working day for your keys to be issued.

Additionally, if you have been assigned office space in the ICE building, please see the receptionist for Proximity ONEcard access information.

Keys are non-transferable; they are not to be loaned to anyone, including family members. If keys are lost and new ones are issued, the deposit will not be refunded when the second set of keys is returned to the office.

All keys must be returned upon program completion or termination.

Further information on obtaining your Proximity ONEcard is available on the ONEcard Office website at: [ualberta.ca/onecard](http://ualberta.ca/onecard)

## 2.6 Personal Information

Students are responsible for the accuracy and validity of their contact information in Bear Tracks ([beartracks.ualberta.ca](http://beartracks.ualberta.ca)), including mailing address, email address, and telephone number.

Transcripts can be requested from the Office of the Registrar at: [ualberta.ca/registrar/records/transcripts](http://ualberta.ca/registrar/records/transcripts).

International students must submit a copy of their study permits to [Shared Services](#) – please include your ID number

International students should also obtain a Social Insurance Number (SIN). A SIN is required for all graduate students receiving financial support. Please submit the SIN number directly to [Shared Services](#).

For International students, it is the student's responsibility to ensure that their study permit is current. Information on renewing a study permit can be found at <https://www.canada.ca/en/immigration-refugees-citizenship/services/study-canada/extend-study-permit.html>

## 2.7 Mail Service

*Campus Mail:* Currently, a Graduate Student Mailbox for Department-specific mail is unavailable. Department mail for students will be held, and you will be contacted via email to come and pick it up. **Mail not picked up within 6 months from the date received will be discarded appropriately.** Campus mail should not be used for sending or receiving personal mail.

## 2.8 Email

A Campus Computing ID (**CCID**) and password are issued to every student applicant upon receipt of their application for admission to the University. An email account is provided for communication between the applicant and the University. Note that your CCID is your email username.

Students can access their university email account at [ualberta.ca/gmail](http://ualberta.ca/gmail)

If you need help with your CCID or password, contact Information Services and Technology (**IST**) <https://www.ualberta.ca/information-services-and-technology/index.html>

## 2.9 Civil and Environmental Engineering Graduate Students' Association (CEEGSA)

The Civil and Environmental Engineering Graduate Students' Association (**CEEGSA**) is a student-run organization. Our objective is to enrich graduate students' life through academic, social, and professional events. We hope to create a space for graduate students in the Department to make a difference and give back to our community.

CEEGSA represents graduate students from the eight key research groups within the Department: Construction, Environmental, Geotechnical, Mining, Petroleum, Structural, Transportation, and Water Resources Engineering.

CEEGSA works closely with the departmental councilor, who represents CEE to the University's Graduate Students' Association (**GSA**). The elected GSA departmental councilor integrates with CEEGSA as VP of Student Life, collecting student feedback and representing the Department's interests to the GSA council.

Want to get involved? Want to know about upcoming events? You can reach us directly through our website [ceegsa.ca](http://ceegsa.ca)



## 3. Funding and Financial Support

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The Department may provide financial support to MSc and PhD students in a variety of ways, including Graduate Teaching Assistantships (**GTAs**), Graduate Research Assistantships (**GRAs**), Graduate Research Assistantship Fellowships (**GRAFs**), and scholarships. Please contact your supervisor or Group Graduate Coordinator for information. All students who receive pay from the University must provide their banking information on Bear Tracks.

The Department is unable to provide financial assistance to graduate students in the MEng program.

### 3.1 Teaching and Research Assistantships

#### Graduate Teaching Assistantships (GTAs)

GTAs provide support to the undergraduate program. This may be in the form of marking, or it may involve assisting in a laboratory or tutorial. GTAs are assigned on a term-by-term basis, and the number of hours per week ranges from 3 to 12. This number reflects the average time commitment of the assignment and not the peak time commitment in any one week. It should be noted that, while the academic term is thirteen weeks long, a student with a GTA is paid for sixteen weeks of work.

Prior to the term, students will be asked to complete a survey indicating their interest for a GTA the following term.

*Note: Students are not eligible for TA funding in their first semester at the UofA.*

- New students arriving at the University of Alberta in their first semester should be focused on getting settled in and completing their coursework and other program requirements (ethics, professional development, etc.)
- New students will learn over this first semester what it is like to be a student at the UofA (i.e., what resources, help, etc. is available; what professors expect from students; etc.)
- TA training is typically offered in August or late December/early January and is only open to students registered in a program at the UofA at the time of offering. Thus, new students arriving in Fall 2023 complete the TA training in late December 2023/early January 2024

#### Graduate Research Assistantships (GRAs)

The duties of a GRA are primarily in support of a faculty member's academic research. Such responsibilities may include, but are not limited to, collecting/coding/analyzing data, literature reviews, library research, writing reports, designing conference presentations, and preparing materials for submission to funding agencies.

The graduate assistantship supervisor and the GRA is an employment relationship. Please note that hours related to GRA are the maximum hours students can work per week.

## Graduate Research Assistant Fellowships (GRAFs)

GRAFs are a form of financial assistance provided to graduate students to focus on their education and training and relates to their own thesis or cited capstone project (directed research project). The relationship between the assistantship supervisor and GRAF is not an employment relationship. The GRAF is normally funded through restricted funds (such as a supervisor's research grant) and may form part of a funding package to support graduate students in their studies. The value of the fellowship may vary by discipline and by the requirements of the funds supporting the GRAF. There is a minimum stipend to be considered a fully-funded GRAF.

## 3.2 Awards and Scholarships

Detailed information on all available scholarships can be found on the FGSR website: [ualberta.ca/graduate-studies/awards-and-funding/scholarships](https://ualberta.ca/graduate-studies/awards-and-funding/scholarships)

## 3.3 Fees

The University of Alberta's fees policies and procedures are stated in the [Tuition and Fees](#) section of the Calendar.

Please refer to <https://www.ualberta.ca/graduate-studies/current-students/tuition-and-fees/index.html> for 2023–2024 fees information and additional sample fee assessments.

Individuals seeking fees information should email [gradfees@ualberta.ca](mailto:gradfees@ualberta.ca)

## 4. Program Requirements

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All graduate students in the Department must fulfill the requirements described in this section. As a graduate student in the Department, **you** are responsible for ensuring that all program requirements are met on the required timeline. Please contact the Graduate Program Advisors if anything is unclear or if you have questions about any requirements or deadlines.

### 4.1 Registration

Although students are ultimately responsible for the accuracy and completeness of their registration, the Department and specifically the supervisor and/or supervisory committee must assist the graduate student in planning the student's program (see [Responsibilities Related to Graduate Programs](#) in the Calendar).

### 4.2 Appointment of Supervisor(s) for MSc/PhD Students

#### Supervisor

Every student in a thesis-based program is required to have a supervisor identified in the admissions process.

## Supervisor on Leave

If a supervisor's leave exceeds two months, they are required to make adequate provision for supervision of their graduate students during their leave. They must submit a written statement to the Department and the student, describing arrangements for satisfactory supervision during leave.

## Supervisory Committee

The supervisory committee is typically formed no later than the end of the first year of the student's program. The Department nominates the supervisory committee on an *Approval of Supervisor and Supervisory Committee* form to FGSR.

The supervisory committee meets with the graduate student annually to review their program and progress. This annual supervisory committee meeting typically occurs no later than August 31 of a given year.

More information can be found by consulting:

- The [Supervision and Supervisory Committees](#) section of the Calendar
- [Areas of Responsibilities Related to Graduate Programs](#) in the [FGSR Graduate Program Manual](#)

## 4.3 Completion of the Supervisor-Student Guidelines

Students registered in an MSc or PhD program must meet with their supervisor and complete the "Supervisor-Student Guidelines" form in their first term of their program, as detailed in the *Completion of the Supervisor-Student Guidelines* section of the [Calendar](#).

## 4.4 Progress Report

Students registered in an MSc or PhD program are required to report their progress to FGSR annually, using the standardized "Progress Report" form, as described in the *Progress Report* section of the [Calendar](#). In instances where the progress report is not submitted at least once within 12 months, the student's registration in subsequent terms will be restricted as a last resort and temporarily to determine a plan for completion.

**Note:** *The Progress Report form will be initiated by FGSR for all student-supervisor pairings noted on the [Appointment of Supervisor\(s\) & Supervisory Committee](#) form, which is submitted by the Department to FGSR. You and your supervisor(s) will receive an email prompt from FGSR when it is time to complete the report.*

A student who receives 2 consecutive evaluations of "in need of improvement" or 1 "unsatisfactory" rating will usually be required to withdraw from their program on the recommendation of the Associate Dean—Graduate Studies and/or the Department Chair.

## 4.5 Ethics, Academic Citizenship, and Academic Integrity

### Ethics and Academic Citizenship Requirement

As members of the University of Alberta community, graduate students are expected to conduct their education, research, workplace behaviour, and professional activities in an ethical manner. As such, the [Ethics and Academic Citizenship requirement](#) ensures that all graduate students have equal access to information about academic integrity, understand what it means to act with integrity, and are equipped to conduct themselves in ways that uphold the [values of the University of Alberta](#).

Full details can be found in the [Calendar](#). Briefly, graduate students should complete the following by the end of the *first term* of registration in their degree program to fulfill the Ethics and Academic Citizenship requirement:

#### MEng and MSc students

- The six-hour, online, non-credit course INT D 710—Ethics and Academic Citizenship

#### PhD students

- The six-hour, online, non-credit course INT D 710—Ethics and Academic Citizenship
- The two-hour, online, non-credit course INT D 720—Advanced Ethics and Academic Citizenship

*Note: PhD students who completed their Master's degree at the University of Alberta and previously passed INT D 710 Ethics and Academic Citizenship are only required to take INT D 720—Advanced Ethics and Academic Citizenship.*

New students will automatically be registered in their respective courses at the start of each term.

### Academic Integrity

All graduate students are expected to adhere to the standards of [academic integrity](#) as practiced at the University of Alberta. These standards are prescribed in the University's [Code of Student Behaviour](#) (hereafter referred to as the Code).

In recognition of the above, it is each student's responsibility to

1. read the Code and to understand what constitutes the academic offences of plagiarism, cheating, misrepresentation of facts and participation in an offence;
2. understand and use proper citation practices and rules in all written work and presentations;
3. understand that the submission of the words, ideas, images, or data of another person as my own, through deliberate deceit or through lack of proper citation, in any academic writing, essay, thesis, project, assignment, presentation or poster constitutes an academic offence under the Code;

*Note that submitting work created by generative AI (i.e. ChatGPT) and not indicating such would constitute an offence under the Code.*

4. understand that all assignment solutions, reports, or any other material submitted during my academic program must be my original work;

5. understand that submitting the work of another student or source as my own, without proper citation, constitutes plagiarism;
6. understand that I cannot submit work that has been or is being submitted for credit in another course or program of study, at the University of Alberta or elsewhere, without prior written approval from the instructor;
7. understand that I must not participate in an offence by providing information to other students which may be used in violation of the Code;
8. understand that a violation of the Code will result in a sanction which will have a significant and negative impact on my academic career; and
9. understand that excuses for violating the Code such as claiming not to understand proper citation practices or maintaining that certain practices are acceptable in other jurisdictions will not be considered in determining whether a violation has occurred or in determining the sanction to be imposed.

If you have questions concerning what is acceptable or not acceptable in a specific course, consult with the instructor. The rules with respect to group work may be course-dependent.

## 4.6 Professional Development Requirement for Graduate Students

All graduate students at the University of Alberta are required to meet the [Professional Development Requirement](#) to complete their program, as described in the Calendar. Further information can be found on the FGSR website, under [Professional Development Requirement](#).

Engineering graduate students should refer to the [Faculty of Engineering Professional Development requirement](#), and should self-enroll in the ENGG GRAD PD eClass to complete Engineering's professional development requirement.

## 4.7 Degrees Offered

### Doctor of Philosophy (PhD)

The PhD is a research-based degree with a minimum period of residence of 2 full-time academic terms at the University of Alberta. The 2 terms need not be consecutive. Residency requirements provide students with exposure to university life and interaction with faculty members and other graduate students. Through coursework, seminar participation, teaching, faculty interaction and faculty-directed research, students learn to be independent researchers and scholars in an academic discipline.

The course requirements for the PhD vary by research discipline (see [Section 5](#)); however, all PhD students must complete a minimum of 10 courses beyond their bachelor's degree (3 of which must be during their current PhD program) in addition to INTD 720 and the Faculty of Engineering Professional Development requirements. All PhD candidates must prepare and defend a thesis of high calibre on an approved topic.

## PhD Candidacy Examination

A doctoral degree is awarded upon successful completion of a doctoral degree program, including passing a candidacy examination. The candidacy examination is an oral examination, in which students must demonstrate to the satisfaction of the examining committee that they possess: 1) an adequate knowledge of the discipline and of the subject matter relevant to the thesis; and 2) the ability to pursue and complete original research at an advanced level.

Normally, the candidacy exam occurs within 2 years of the beginning of the PhD program and not less than 6 months prior to the final examination. All program requirements, other than the thesis research, must be completed within 36 months of the commencement of a student's program.

The student should prepare a PhD proposal to present at the candidacy exam. The proposal should summarize the issues and ideas of the research and to present the approach to solve the problem. The proposal should not exceed 25 pages (1.5 line spacing), including all figures and references. Students should check the proposal requirements in the "Preparation of a PhD Candidacy Exam Proposal" document found at <https://civileng-uofa.ca/grad-program/courses-and-exams/>. The student should distribute the written proposal all members of the examining committee no less than 2 weeks prior to the date of the examination.

5 weeks prior to the candidacy examination, the supervisor proposes a date for the examination and the composition of the examining committee, and then the Department notifies FGSR.

After a successful examination, the Department notifies FGSR. If not successful, the Department recommends the best course of action to FGSR.

## PhD Final Oral Examination

Prior to setting examination dates, and before the thesis is sent to the external examiner, all supervisory committee members declare in writing to the supervisor that the thesis is adequate to proceed to the final oral examination by signing the *Preliminary Thesis Acceptance Form*.

3 months before the exam, the supervisor requests approval of an external examiner. The Department invites the external examiner.

A minimum of 5 weeks prior to the exam, the supervisor proposes a date for the examination and the remaining committee members, and they submit the thesis to the Graduate Office. The Department recommends the examining committee members to FGSR, notifies examiners of the date, and supplies a copy of the thesis.

Shortly after the examination, the Department advises FGSR of the examining committee's decision.

Within 6 months of examination, the student must submit their thesis for review and approval by FGSR.

## Master of Science (MSc)

The MSc is a research-based master's degree with no residency requirement. All MSc students must complete a minimum of 6 courses (minimum of 18 credits; course requirements for the MSc vary by research discipline, see [Section 5](#)) in addition to INTD 710 and the Faculty of Engineering Professional Development requirements.

All MSc students must defend the thesis before a panel of 3 or more academic staff members, including the thesis supervisor(s).

The time required to complete the MSc program will vary according to the previous training of the student and the nature of the research undertaken. However, 2 years is normally the minimum time required, with a maximum of 4 years to complete the program (from the date of first registration).

## MSc Final Oral Examination

A *minimum of 5 weeks* prior to the exam, the supervisor proposes a date for the examination and the composition of the examining committee, and they submit the thesis to the Graduate Office. The Department recommends the examining committee members to FGSR, notifies examiners of the date, and supplies a copy of the thesis.

Shortly after the examination, the Department advises FGSR of the examining committee's decision.

*Within 6 months* of examination, the student must submit their thesis for review and approval by FGSR.

## Master of Engineering (MEng)

The MEng is a non-thesis, course-based master's degree with no residency requirement. The MEng program can be completed in a minimum of twelve months with a maximum time of four years from the date of first registration.

An MEng requires the completion of a minimum of 8 graduate courses (minimum of 24 credits) and a directed research project (900 level), as well as INTD 710 and the Faculty of Engineering Professional Development requirements. The directed research project is equivalent to one three-credit course (approximately 160 hours of work).

MEng students must register in the appropriate Directed Research Project (900-level). *Please contact the Graduate Office to register.* Directed Research Project (900-level) is restricted to students in course-based Master's programs.

## Composition of Examining Committees

For all examination committees, at least half of the examiners must have a degree equivalent to or higher than the degree being examined. Brief guidelines are presented below, and detailed information can be found in the [Calendar](#).

### Master's Thesis Examination Committee

Where there is a supervisor only, the examining committee is the supervisor and 2 university examiners or 1 university examiner and 1 specialized knowledge examiner.

### Doctoral Candidacy Examination Committee

The examining committee consists of the supervisor, supervisory committee, and either 1 university examiner **or** 1 specialized knowledge examiner.

When deemed necessary by the supervisor, 1 additional university examiner or specialized knowledge examiner may be appointed to the examining committee. In such cases, the examining committee consists of the supervisor, supervisory committee and either 2 university examiners **or** 1 university examiner and 1 specialized knowledge examiner. The examining committee does not normally include an examiner from outside of the University of Alberta. However, when deemed necessary by the supervisor, an external examiner may be appointed to the committee. In this case, the external examiner replaces a university examiner or a specialized knowledge examiner.

## Doctoral Thesis Examination Committee

The examining committee consists of the supervisor, supervisory committee, one external examiner, and either 1 university examiner or 1 specialized knowledge examiner.

# 5. Course Requirements

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The following sections outline the course requirements for each of the degree options and different discipline areas offered in the Department of Civil and Environmental Engineering. Students must maintain a GPA of at least 2.7 to remain in the MSc and MEng program, or 3.0 to remain in the PhD program.

## 5.1 Construction Engineering and Management

### MEng

8 courses (minimum of 24 credits):

- 3 core courses: CIV E 601, CIV E 602 and CIV E 709 (Lean Construction)
- 3 elective courses related to the discipline area from CIV E 603, CIV E 605, CIV E 606, CIV E 607, CIV E 608, or CIV E 709 (Sustainable Construction)
- 2 elective courses: any 500-, 600- or 700-level Engineering or Science course, **as approved by the MEng Academic Advisor**

Plus, a Capstone project (CIV E 900 Directed Research).

### MSc

6 courses (minimum of 18 credits):

- 3 core courses: CIV E 601, CIV E 602, and CIV E 709 (Lean Construction)
- 2 elective courses related to the discipline area from CIV E 603, CIV E 605, CIV E 606, CIV E 607, CIV E 608 or CIV E 709 (Sustainable Construction)
- 1 elective course: any 500-, 600- or 700-level Engineering or Science course approved by the supervisor

Plus, a thesis.

### PhD

10 courses beyond the bachelor's degree, with a minimum of 3 courses completed during the doctoral program at the University of Alberta:

- 3 core courses: CIV E 601, CIV E 602, and CIV E 709 (Lean Construction)
- Electives, as approved by the supervisor and the supervisory committee

Plus, a thesis.



## 5.2 Environmental Engineering

### MEng

8 courses (minimum of 24 credits):

- 4 courses from CIV E 620, CIV E 622, CIV E 624, CIV E 628 or CIV E 657
- 4 elective courses: any 500-, 600- or 700-level Engineering or Science courses, within Environmental Engineering and Science or related field, **as approved by the MEng Academic Advisor**

Plus, a Capstone project (CIV E 900 Directed Research).

### MSc

6 courses (minimum of 18 credits):

- 3 courses from CIV E 620, CIV E 622, CIV E 624, CIV E 628 or CIV E 657
- 3 elective courses: any 500-, 600- or 700-level Engineering or Science courses, within Environmental Engineering and Science or related field, approved by the supervisor

Plus, a thesis.

### PhD

10 courses beyond the bachelor's degree, with a minimum of 3 courses completed during the doctoral program at the University of Alberta:

- 3 courses from: CIV E 620, CIV E 622, CIV E 624, CIV E 628 or CIV E 657
- Electives: any 500-, 600- or 700- level Engineering or Science course, within Environmental Engineering and Science or related field, approved by the supervisor and the supervisory committee

Plus, a thesis.

## 5.3 Geoenvironmental Engineering

### MEng

8 courses (minimum of 24 credits):

- 3 core courses: CIV E 680, CIV E 682, and CIV E 695
- 3 elective courses related to discipline area from CIV E 681, CIV E 683, CIV E 684, CIV E 697
- 2 elective courses: any 500-, 600-, 700-level Engineering or Science course, **as approved by the MEng Academic Advisor**

Plus, a Capstone project (CIV E 900 Directed Research).

### MSc

6 courses (minimum of 18 credits):

- 3 core courses: CIV E 680, CIV E 682, and CIV E 695
- 2 elective courses related to discipline area from CIV E 681, CIV E 683, CIV E 684, CIV E 697, approved by the supervisor
- 1 elective course: any 500-, 600-, or 700-level Engineering or Science course approved by the supervisor

Plus, a thesis.

### PhD

10 courses beyond the bachelor's degree, with a minimum of 3 courses completed during the doctoral program at the University of Alberta:

- 3 core courses: CIV E 680, CIV E 682, and CIV E 695
- Electives, as approved by the supervisor and the supervisory committee

Plus, a thesis.

## 5.4 Geotechnical Engineering

### MEng

8 courses (minimum of 24 credits):

- 3 core courses: CIV E 680, CIV E 690, and CIV E 695
- 3 elective courses related to discipline area from CIV E 664, CIV E 681, CIV E 683, CIV E 684, CIV E 697, CIV E 799 (Rock Engineering), and CIV E 799 (Numerical Modelling)
- 2 elective courses: any 500-, 600-, or 700-level Engineering or Science course, **as approved by the MEng Academic Advisor**

Plus, a Capstone project (CIV E 900 Directed Research).

### MSc

6 courses (minimum of 18 credits):

- 3 core courses: CIV E 680, CIV E 690, and CIV E 695
- 2 elective courses related to discipline area from CIV E 664, CIV E 681, CIV E 683, CIV E 684, CIV E 697, CIV E 799 (Rock Engineering), and CIV E 799 (Numerical Modelling), as approved by the supervisor
- 1 elective course: any 500-, 600-, or 700-level Engineering or Science course approved by the supervisor

Plus, a thesis.

### PhD

10 courses beyond the bachelor's degree, with a minimum of 3 courses completed during the doctoral program at the University of Alberta:

- 3 core courses: CIV E 680, CIV E 690, and CIV E 695
- Electives, as approved by the supervisor and the supervisory committee

Plus, a thesis.

## 5.5 Mining Engineering

### MEng

8 courses (minimum of 24 credits):

- 1 core course: MIN E 610
- 2 courses: 600- level Mining courses, **as approved by the MEng Academic Advisor**
- 1 elective course related to the discipline area: any 500-, 600-, or 700-level Engineering or Science course, **as approved by the MEng Academic Advisor**
- 1 elective course: any 500-, 600-, or 700-level Engineering or Science course, **as approved by the MEng Academic Advisor**

Plus, a Capstone project (MIN E 900 Directed Research).

### MSc

6 courses (minimum of 18 credits):

- 1 core course: MIN E 610
- 2 courses: 600-level MIN E courses approved by the supervisor
- 2 elective courses related to the discipline area: any 500-, 600-, or 700-level Engineering or Science course approved by the supervisor
- 1 elective course: any 500-, 600-, or 700-level Engineering or Science course approved by the supervisor

Plus, a thesis.

### PhD

10 courses beyond the bachelor's degree, with a minimum of 3 courses completed during the doctoral program at the University of Alberta:

- 1 core course: MIN E 610
- 2 courses: 600-level MIN E courses approved by the supervisor and the supervisory committee
- Electives, as approved by the supervisor and the supervisory committee

Plus, a thesis.

## 5.6 Petroleum Engineering

### MEng

8 courses (minimum of 24 credits):

- 4 core courses: PET E 630, PET E 631, PET E 664, and either PET E 636 or PET E 649
- 4 elective courses: any 500-, 600- or 700-level, Science or Engineering course (one of which must be a PET E course), **as approved by the MEng Academic Advisor**

Plus, a Capstone project (PET E 900 Directed Research).

### MSc

6 courses (minimum of 18 credits):

- 3 core courses from: PET E 630, PET E 631, PET E 664, PET E 636, or PET E 649.
- 3 elective courses: any 500-, 600-, or 700-level Engineering or Science course (one of which must be a PET E course) approved by the supervisor.

Plus, a thesis.

### PhD

10 courses beyond the bachelor's degree, with a minimum of 3 courses completed during the doctoral program at the University of Alberta:

- The 10 courses beyond the bachelor's degree must be 500/600-level, and a maximum of two 500-level can be counted
- At least 5 courses must be 500/600-level PET E courses offered at the UofA or equivalent
- At least three 600-level courses must be taken while in the PhD program at the UofA
- Electives, as approved by the supervisor and the supervisory committee

Plus, a thesis.

## 5.7 Structural Engineering

### MEng

8 courses (minimum of 24 credits):

- 4 core courses: CIV E 660, CIV E 665, and two from CIV E 661, CIV E 670, or CIV E 672.
- 4 elective courses: any 500-, 600- or 700-level, Science or Engineering course, **as approved by the MEng Academic Advisor**

Plus, a Capstone project (CIV E 900 Directed Research).

### MSc

6 courses (minimum of 18 credits):

- 3 core courses: CIV E 660, CIV E 665, and either CIV E 670 or CIV E 672.
- 3 elective courses: any 500-, 600-, or 700-level Engineering or Science courses approved by the supervisor.

Plus, a thesis.

### PhD

10 courses beyond the bachelor's degree, with a minimum of 3 courses completed during the doctoral program at the University of Alberta:

- 6 core courses: CIV E 660, CIV E 661, CIV E 665, CIV E 664, and two design-based courses from: CIV E 662 (Timber Design), CIV E 670, CIV E 672, CIV E 678.
- Electives, as approved by the supervisor and the supervisory committee

Plus, a thesis.

## 5.8 Transportation Engineering

### MEng

8 courses (minimum of 24 credits):

- 3 core courses from CIV E 612, CIV E 613, CIV E 614, and CIV E 616
- 3 elective courses related to discipline area, such as CIV E 617 (Highway Geometric Design), CIV E 619 (GIS in Transportation), CIV E 719 (Resilient Transportation), CIV E 719 (Pavement), CIV E 779 (Machine Learning), CIV E 779 (Future Infrastructure Systems), **as approved by the MEng Academic Advisor**
- 1 elective course related to the discipline area: any 500-, 600-, or 700-level Engineering or Science course, **as approved by the MEng Academic Advisor**
- 1 elective course: any 500-, 600-, or 700-level Engineering or Science course, **as approved by the MEng Academic Advisor**

Plus, a Capstone project (CIV E 900 Directed Research)

### MSc

6 courses (minimum of 18 credits):

- 3 core courses from CIV E 612, CIV E 613, CIV E 614, and CIV E 616
- 2 elective courses related to discipline area, such as CIV E 617 (Highway Geometric Design), CIV E 619 (GIS in Transportation), CIV E 719 (Resilient Transportation), CIV E 719 (Pavement), CIV E 779 (Machine Learning), CIV E 779 (Future Infrastructure Systems), as approved by the supervisor
- 1 elective course: any 500-, 600-, or 700-level Engineering or Science course, as approved by the supervisor

Plus, a thesis.

### PhD

10 courses beyond the bachelor's degree, with a minimum of 3 courses completed during the doctoral program at the University of Alberta:

- 3 core courses from CIV E 612, CIV E 613, CIV E 614, and CIV E 616
- Electives, as approved by the supervisor and the supervisory committee

Plus, a thesis.

## 5.9 Water Resources Engineering

### MEng

8 courses (minimum of 24 credits):

- 4 core courses from: CIV E 631, CIV E 635, CIV E 636, CIV E 641, CIV E 645, or CIV E 739.
- 4 elective courses: any 500-, 600- or 700-level, Engineering or Science courses, **as approved by the MEng Academic Advisor**

Plus, a Capstone project (CIV E 900 Directed Research).

### MSc

6 courses (minimum of 18 credits):

- 4 core courses from: CIV E 631, CIV E 635, CIV E 636, CIV E 641, CIV E 645, or CIV E 739.
- 2 elective courses: any 500-, 600- or 700-level, Engineering or Science courses approved by the supervisor.

Plus, a thesis.

### PhD

10 courses beyond the bachelor's degree, with a minimum of 3 courses completed during the doctoral program at the University of Alberta:

- 4 core courses from: CIV E 631, CIV E 635, CIV E 636, CIV E 641, CIV E 645, or CIV E 739.
- Electives, as approved by the supervisor and the supervisory committee

Plus, a thesis.



## 5.10 Cross-Disciplinary Study (General) with a Degree in Civil and Environmental Engineering

### MSc

6 courses (minimum of 18 credits):

- 4 courses: 600- or 700-level CIV E, MIN E, or PET E courses, as approved by Associate Dean—Graduate Studies of the Department and the supervisor.
- 2 elective courses: 500-, 600- or 700-level Engineering or Science courses approved by the supervisor

Plus, a thesis.

### PhD

10 courses beyond the bachelor's degree, with a minimum of 3 CIV E, MIN E, or PET E courses completed during the doctoral program at the University of Alberta:

- Courses, as approved by the Associate Dean—Graduate Studies of the Department, supervisor, and the supervisory committee.

Plus, a thesis.

Certain streams within the cross-disciplinary area have specific courses as shown in the following pages.

## Building Engineering Program

### MSc

6 courses (minimum of 18 credits):

- 4 courses from: CIV E 605 (Decision Support Systems in Construction), CIV E 611 (Lean Construction), CIV E 662 (Structural Timber Design), CIV E 676, CIV E 709 (BIM Project Management), CIV E 709 (Lean Construction), CIV E 709 (Robotics in Construction), CIV E 779 (Fundamentals of Building Science), CIV E 779 (Machine Learning for Engineers), ENG M 558 (Ergonomics and Work Station), ENG M 607 (Lean Manufacturing)
- 2 elective courses: 500-, 600- or 700-level Engineering or Science courses approved by the supervisor

Plus, a thesis.

### PhD

10 courses beyond the bachelor's degree, with a minimum of 3 CIV E, MIN E, or PET E courses completed during the doctoral program at the University of Alberta:

- 4 courses from: CIV E 605 (Decision Support Systems in Construction), CIV E 611 (Lean Construction), CIV E 662 (Structural Timber Design), CIV E 676, CIV E 709 (BIM Project Management), CIV E 709 (Lean Construction), CIV E 709 (Robotics in Construction), CIV E 779 (Fundamentals of Building Science), CIV E 779 (Machine Learning for Engineers), ENG M 558 (Ergonomics and Work Station), ENG M 607 (Lean Manufacturing)
- Electives, as approved by the supervisor and the supervisory committee

Plus, a thesis.

## Cellulosic Nanomaterials Program

### MSc

6 courses (minimum of 18 credits):

- 4 courses from: CIV E 622, CIV E 631, CH E 512, CH E 611, CH E 617, MEC E 633, MEC E 637, MEC E 662 or MEC E 682
- 2 elective courses: 500-, 600- or 700-level Engineering or Science courses approved by the supervisor

Plus, a thesis.

### PhD

10 courses beyond the bachelor's degree, with a minimum of 3 CIV E, MIN E, or PET E courses completed during the doctoral program at the University of Alberta:

- 4 courses from: CIV E 622, CIV E 631, CH E 512, CH E 611, CH E 617, MEC E 633, MEC E 637, MEC E 662 or MEC E 682
- Electives, as approved by the supervisor and the supervisory committee

Plus, a thesis.

# Pavement Engineering Program

## MSc

6 courses (minimum of 18 credits):

- 1 core course: CIV E 719 (Pavement Design)
- 2 courses from: CIV E 601, CIV E 602, CIV E 664, CIV E 680, CIV E 681, CIV E 690, CIV E 695, CIV E 697 or CIV E 799
- 3 elective courses: 500-, 600- or 700-level Engineering or Science courses approved by the supervisor

Plus, a thesis.

## PhD

10 courses beyond the bachelor's degree, with a minimum of 3 CIV E, MIN E, or PET E courses completed during the doctoral program at the University of Alberta:

- 1 core course: CIV E 719 (Pavement Design)
- 2 courses from: CIV E 601, CIV E 602, CIV E 664, CIV E 680, CIV E 681, CIV E 690, CIV E 695, CIV E 697 or CIV E 799
- Electives, as approved by the supervisor and the supervisory committee

Plus, a thesis.

## Underground Trenchless Construction Program

### MSc

6 courses (minimum of 18 credits):

- 1 core course: CIV E 609
- 2 courses from: CIV E 601, CIV E 602, CIV E 664, CIV E 680, CIV E 681, CIV E 690, CIV E 695, or CIV E 697
- 3 elective courses: 500-, 600- or 700-level Engineering or Science courses approved by the supervisor

Plus, a thesis.

### PhD

10 courses beyond the bachelor's degree, with a minimum of 3 CIV E, MIN E, or PET E courses completed during the doctoral program at the University of Alberta:

- 3 core courses: CIV E 601, CIV E 602, and CIV E 609
- 2 courses from: CIV E 664, CIV E 680, CIV E 681, CIV E 690, CIV E 695, or CIV E 697
- Electives, as approved by the supervisor and the supervisory committee

Plus, a thesis.

## 6. Course Exemption

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Graduate students can request exemptions for *no more than two courses* taken at another institution or in another program.

In seeking a course exemption, the student must present detailed course material to the CEE course instructor (not his/her supervisor and not the Graduate Coordinator). The CEE instructor will review the course material from the other institution/program in detail and make sure that the student has learned the material that is covered in the required CEE graduate course.

Note that the student must have obtained a minimum grade of B (or equivalent) or higher in the course(s) from another university/program.

The process is as follows:

1. The student identifies the appropriate course in the Department and provides all the course material from another university/program to the CEE course instructor.
2. The course material must include
  - a. The transcript showing the course title, description, grade, and year taken.
  - b. The official course outline as provided by the institution or instructor of the course.
  - c. If needed, the CEE instructor may request additional course material from the other institution/program, such as notes, assignments, exams, etc.
3. The CEE instructor will decide if the material presented by the student covers the majority (i.e., more than 80%) of the equivalent CEE course.
4. If the CEE instructor is satisfied with the course(s) completed in another university/program, and if the student is not required to take the course, the instructor will send an email outlining the reasons for granting the exemption to the Group Graduate Coordinator.
5. The Group Graduate Coordinator will review the recommendation from the instructor and send an email to the Graduate Program office, advising of the outcome.
6. Final approval will be made by the Associate Dean—Graduate Studies of the Department.

### Important notes

If a student is granted exemption to a required course, it does not mean that they will be given credit for the course. The course will not appear on the student's transcript. The only time a course appears on the transcript is a course completed at the University of Alberta or under an official exchange agreement, such as the Western Dean's Agreement.

MSc and MEng students must complete a minimum of 6 and 8 courses, respectively, regardless of the number of courses being exempted. If a core course is exempted, the student must take another approved graduate course to meet the minimum course requirement.

**Revision History**

Aug. 30, 2023	Original
Sep. 5, 2023	Updated Geotechnical Engineering MSc course requirements
Sep. 8, 2023	Updated Water Resources Engineering MEng and MSc core course requirements