

Department of Mechanical Engineering  
Faculty of Engineering  
McGill University

# GRADUATE STUDENT HANDBOOK

**2023-2024**

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**Welcome!**

This handbook outlines the policies and regulations for the Mechanical Engineering graduate programs at McGill University. As a graduate student in our department, it is your responsibility to familiarize yourself with your program requirements (courses, thesis, deadlines...). Funding opportunities and other useful resources are also provided in this handbook. We hope that your studies in our department will enrich your education and expand your horizons, and we wish you success in the graduate program you have chosen. This handbook should help you make the best of your time as a graduate student in our department.

Mathias Legrand  
Associate Professor and Graduate Program Director

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## Useful links and resources

Questions concerning this handbook or graduate studies in our department should be directed to the email address [grad.mecheng@mcgill.ca](mailto:grad.mecheng@mcgill.ca).

- Department website <http://www.mcgill.ca/mecheng>
- Department website, graduate admissions <http://www.mcgill.ca/mecheng/grad>
- Graduate and Postdoctoral Studies, graduate admissions <http://www.mcgill.ca/gradapplicants>
- Information for New Students <http://www.mcgill.ca/gps/students/new>
- Student Service Point (Enrollment Services) <http://www.mcgill.ca/students/servicepoint/>  
3415 McTavish St. (Inside McLennan Library Building) 514-398-7878
- Student Records Office <http://www.mcgill.ca/gps/students/registration/>
- Graduate and Postdoctoral Studies (GPS) <https://www.mcgill.ca/gps/graduate-and-postdoctoral-studies>  
514-398-3990 (or 514-398-7878)
- Thesis Office <http://www.mcgill.ca/gps/students/thesis/>
- Office of Fellowships and Awards <http://www.mcgill.ca/gps/students/fellowships/>
- Payroll department <http://www.mcgill.ca/hr/pay>. 688 Sherbrooke St. West 514-398-4747
- Student Accounts Office and Fee Information <http://www.mcgill.ca/student-accounts/>  
3415 McTavish St. (Inside McLennan Library Building) 514-398-7878
- IT Services <http://www.mcgill.ca/it/>. 688 Sherbrooke St. West, Room 285, 514-398-3398
- ID Centre <http://www.mcgill.ca/student-records/id/>. 3415 McTavish St. (Inside McLennan Library Building)  
514-398-7878
- Transcripts Office <http://www.mcgill.ca/student-records/transcripts/>
- Convocation Inquiries <https://mcgill.ca/graduation/convocation>
- Student Health Service <http://www.mcgill.ca/studenthealth/>
- Scholarships and Student Aid Office <http://www.mcgill.ca/studentaid/>
- International Student Services <http://www.mcgill.ca/internationalstudents/>
- Career Planning Service (CaPS) <http://www.mcgill.ca/caps/>
- Residences <http://www.mcgill.ca/residences/>
- Off-Campus Housing <http://www.mcgill.ca/offcampus/>
- Graduate Association of Mechanical Engineering Students (GAMES) <http://www.games.mcgill.ca>
- Post-Graduate Students' Society (PGSS) <https://pgss.mcgill.ca/en/home>
- Association of Graduate Students Employed at McGill (AGSEM) <https://www.agsem.ca/>

## 1 Master's programs

### 1.1 Master of Science (M.Sc.)

This is a research program requiring a minimum of 45 credits consisting of 28 credits of thesis work, a one-credit seminar and a set of one-semester courses with a combined weight of at least 16 credits (excluding the Thesis courses below). A research project must be carried out under the supervision of a full time, tenure track Faculty member in Mechanical Engineering (Adjunct professor or Emeritus professor can co-supervise the research as well). The requirements for the degree are described in more detail below:

- Thesis work (28 credits total). The following thesis-related credits must be taken (numbers in parentheses represent credit weighting):
  - MECH 691 (3): M.Sc. Thesis Literature Review. *Must be taken in the first term.*
  - MECH 692 (4): M.Sc. Thesis Research Proposal. *Must be taken in the second term.*
  - MECH 693 (3): M.Sc. Thesis Progress Report 1. *Must be taken in the second term.*
  - MECH 694 (6): M.Sc. Thesis Progress Report 2. *Must be taken in the third term.*
  - MECH 695 (12): M.Sc. Thesis: A thesis describing the candidate's research. *Recommended for the fourth term.* See Appendix 2 at the end of the handbook for guidelines on thesis preparation and submission.

Upon registration for any of the thesis courses (MECH 691, 692, 693, 694, and 695), the grade "IP" (In Progress), is automatically assigned. This temporary grade will change to "P" (Pass) once the degree has been approved by the Senate. Please be sure to register once and only once for each of these courses during your program.

- Seminar, MECH 609 (1 credit): Should be taken the same term as MECH 695. If you do not present your seminar in the same term in which you registered for this course, *do not register for it again.* The grade of "HH" (which means "To be Continued") is assigned and then changed to a regular grade once you have made your presentation. See Appendix 1 at the end of this handbook for detail on the Seminar.
- Set of one-semester courses with a minimum combined weight of 16 credits. A set of graduate level courses (500, 600 or 700 levels) must be selected by the student and thesis supervisor. *Out of the 16 required credits, a minimum of 8 credits must be taken in the Faculty of Engineering. The remaining 8 credits may be taken in the Faculty of Engineering, including SEAD (Sustainability in Engineering and Design) courses in TISED (Trottier Institute for Sustainability in Engineering and Design) or in the Faculty of Science. Courses from the Biomedical Engineering Department (Faculty of Medicine) are also accepted and count the same way as courses from the Faculty of Engineering towards coursework credits. (Faculty of Engineering-FACC) courses do not count toward the complementary course credits. The 16-credit coursework requirement is typically achieved with a combination of 500-level courses (3 credits each), and/or one or more 600-level course (4 credits each).*

The M.Sc. program is a full-time program, and students in this program automatically have full-time status. Part-time status is not permitted in this program. The length of study for full-time students is typically 18-24 months. The time limit to complete this degree is three years. Whether or not you are registering for courses, you *must* register for the current academic year online and include the registration confirmation REGN RCGR numbers (for *both* Fall and Winter) in your registration.

### 1.2 Master of Engineering (M.Eng.)

This is a course-based program which requires a minimum of 45 credits consisting of a set of one-semester core graduate courses for a total of 16 credits, a set of one-semester complementary<sup>1</sup> graduate courses with a combined weight of at least 16 credits, a Research Project of 12 credits and a Seminar of 1 credit.

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<sup>1</sup> The term *complementary* is used to distinguish the list of graduate courses selected by the student from the list of core graduate courses specified by the program.

- One-semester core graduate courses (16 credits total):
  - MECH 605 (4): Applied Mathematics 1
  - MECH 610 (4): Fundamentals of Fluid Dynamics
  - MECH 632 (4): Advanced Mechanics of Materials
  - MECH 642 (4): Advanced Dynamics

*These four courses should be taken in the first year in the program.*

- Complementary one-semester graduate courses (16 credits total): A minimum of 16 credits (500, 600, or 700 level) from the Faculty of Engineering may be selected by the student, based on interest and the choice of area of concentration. Courses at the graduate level from other faculties may also be taken, with prior approval from the student's project supervisor and the Graduate Program Director. A maximum of 3 credits of FACC courses at the 500, 600, or 700 level may be credited toward the degree. Each Non-Thesis student should select their courses themselves, in accordance with the program information included in this package. You must also include registration confirmation REGN RCGR in your registration. Registering online through MINERVA and including the registration confirmation REGN RCGR numbers (for both Fall and Winter), completes the registration process.
- Research project and Seminar (13 credits total):
  - MECH 603 (9): M. Eng. Project 1.
  - MECH 604 (3): M. Eng. Project 2.
  - MECH 609 (1): Seminar (see [Appendix A](#) for details).

Students register for MECH 603 and 604 near the end of the program and these correspond to a single project. Non-thesis students are encouraged to discuss with professors in the Department regarding the availability of projects that are in an area of mutual interest. Industrial liaison is encouraged. Note that it is not necessary to wait to register for MECH 603 and MECH 604 until you plan to submit your project report. If you do not submit your report by the end of the term(s) in which you register for these courses, do not register for them again. The grade of “HH” (which means “To be continued”), is assigned and then changed to a regular grade once the project report has been submitted.

The M.Eng. program must be completed within three years of initial registration, assuming full-time status. If a student is registered as half time, each pair of terms counts as one full-time term. For students who have registered strictly on a part- or half-time basis throughout their program, the degree must be completed within five years of initial registration.

### 1.3 Master of Engineering–Aerospace program (M.Eng. Aero)

This is a course-based program which requires a minimum of 45 credits consisting of a set of one-semester core graduate courses. It also includes a four month ‘Industrial Stage’ (*i.e.* engineering internship in an aerospace company). The [M.Eng. Aero degree](#) is offered to students who wish to specialize in the general area of aerospace engineering. While intended as a full-time program, the M.Eng. Aero program may be completed on a part-time basis. This degree is given in conjunction with Concordia University, École Polytechnique, Université Laval, Ecole de Technologie Supérieure and Université de Sherbrooke as well as Aerospace Industries in the Montréal area. The program is coordinated by the Comité Industrie/universités sur la Maîtrise en Génie Aéronautique et Spatial (CIMGAS) that has representatives from all participating universities and aerospace companies. McGill’s representative in CIMGAS is Prof. Pascal Hubert. Students registered at McGill are required to take two courses from two other institutions. Depending on their background and interests, M.Eng. Aero students can specialize in one of the three areas:

- (i) Aeronautics and Space Engineering
- (ii) Avionics and Control
- (iii) Structures and Materials

Each of these specializations has its own set of requirements described below. Students must explicitly choose their specialization and are responsible for registering for the appropriate courses. Combining core

courses from different specializations is not permitted. Questions regarding programs of study and specializations should be directed to the Aerospace Program Director.

### (i) Aeronautics and Space Engineering Specialisation

- Core courses (12 credits total): Three core courses must be selected from:
  - MECH 605 Applied Maths 1 (4 credits)
  - MECH 610 Fundamentals of Fluid Mechanics (4 credits)
  - MECH 632 Advanced Mechanics of Materials (4 credits)
  - MECH 642 Advanced Dynamics (4 credits)

Students are strongly urged to complete these courses early in their program, as problems may arise if they are taken later.

- Specialisation courses (9 credits total):
  - MECH 532 Aircraft Performance, Stability and Control (3 credits)
  - MECH 533 Subsonic Aerodynamics (3 credits)
  - MECH 542 Spacecraft Dynamics (3 credits)
- MECH 687: Aerospace Case Study (3 credits). See details below.
- MECH 688: Industrial Stage (6 credits). See details below.
- Complementary courses (selection of courses to reach a minimum of 45 credits). A minimum of two (2) complementary courses are to be taken outside of McGill, at least at two (2) other participating universities. This does not include the MECH 687 Aerospace Case Study that may also be taken at other participating universities but is considered as a McGill course. List of graduate courses at McGill is available via the [Minerva Dynamic Schedule](#). Check with the M.Eng. Aero program director that your course selection is acceptable for the degree.

### (ii) Structures and Materials Specialisation

- Core courses (12 credits total): Three core courses must be selected from:
  - MECH 605 Applied Maths 1 (4 credits)
  - MECH 610 Fundamentals of Fluid Mechanics (4 credits)
  - MECH 632 Advanced Mechanics of Materials (4 credits)
  - MECH 642 Advanced Dynamics (4 credits)

Students are strongly urged to complete these courses early in their program, as problems may arise if they are taken later.

- Specialisation courses (9 or 10 credits total):
  - MECH 530 Mechanics of Composite Materials (3 credits)
  - MECH 536 Aircraft Structures (3 credits)
  - MECH 546 Finite Element Methods in Solid Mechanics (3 credits) OR CIVE 602 Finite Element Analysis (4 credits)
- Additional specialisation courses (9 or 10 credits total) students with an undergraduate degree different from Mechanical Engineering **must** take these courses:
  - MIME 565 Aerospace Metallic Materials and Manufacturing Processes (3 credits)
  - MECH 605 Applied Maths 1 (4 credits)
  - MECH 632 Advanced Mechanics of Materials (4 credits)
- MECH 687: Aerospace Case Study (3 credits). See details below
- MECH 688: Industrial Stage (6 credits): See details below
- Complementary courses (selection of courses to reach a minimum of 45 credits). A minimum of two (2) complementary courses are to be taken outside of McGill, at least at two (2) other participating universities. This does not include the MECH 687 Aerospace Case Study that may also be taken at other participating universities but is considered as a McGill course.

The list of graduate courses at McGill is available via the [Minerva Dynamic Schedule](#). Check with the M.Eng. Aero program director that your course selection is acceptable for the degree.

### (iii) Avionics and Controls specialisation

Students specializing in the Avionics and Control are *expected to have an undergraduate degree in Electrical Engineering*. Candidates with a non-Electrical Engineering background who wish to specialize in Avionics and Control will be required to take certain preparatory undergraduate courses, not for credit toward their degree, to bring their background to a level which will allow them to take the required graduate courses. Selection of these courses will be done by the Avionics and Control convenor, based on the student's prior record.

- Core courses (19 credits)
  - ECSE 501 Linear Systems (3 credits)
  - MECH 513 Control Systems (3 credits)
  - ECSE 509 Probability and Random Signals 2 (3 credits)
  - ECSE 511 Introduction to Digital Communication (3 credits)
  - MECH 532 Aircraft Performance, Stability and Control (3 credits)
  - MECH 605 Applied Maths 1 (4 credits)
- Complementary courses (selection of courses to reach a minimum of 45 credits). A minimum of two (2) complementary courses must be taken outside McGill, at least at two other participating universities. This does not include the MECH 687 Aerospace Case Study that may also be taken at other participating universities but is considered as a McGill course. The list of graduate courses at McGill is available via the [Minerva Dynamic Schedule](#). Check with the M.Eng. Aero program director that your course selection is acceptable for the degree.
  - ECSE 505 Nonlinear Control Systems
  - ECSE 506 Stochastic Control and Decision Theory
  - ECSE 507 Optimization and Optimal Control
  - ECSE 510 Random Processes and Systems
  - ECSE 512 Digital Signal Processing 1
  - ECSE 513 Robust Control Systems
  - ECSE 521 Digital Communications 1
  - ECSE 527 Optical Engineering
  - ECSE 528 Telecommunication Network Architecture
  - ECSE 529 Image Processing and Communication
  - ECSE 531 Real Time Systems
  - ECSE 532 Computer Graphics
  - ECSE 545 Microelectronics Technology
  - ECSE 565 Introduction to Power Electronics
  - ECSE 573 Microwave Electronics
  - ECSE 596 Optical Waveguides
  - COMP 538 Person-Machine Communication
  - COMP 557 Fundamentals of Computer Graphics
- MECH 687: Aerospace Case Study (3 credits). See details below
- MECH 688: Industrial Stage (6 credits): See details below

### **MECH 687: Aerospace Case Studies** (applies to ALL M.Eng. Aero specialisations)

Case Study courses are organized by CIMGAS and are shared while being offered at one of the participating universities and are conducted by industrial experts. The course covers topical case studies drawn from aerospace industrial experience. The member of the Aerospace Engineering Committee in charge of coordinating McGill's involvement in these Case Study courses is [Prof. Pascal Hubert](#). As it is not possible to repeat the material given in a particular Case Study, it is the responsibility of the student to choose an



appropriate Case Study when it is offered. While only one Case Study course is required by the Program, a second may be taken with the permission of the appropriate convenor. Please also note that enrolment in some Case Study courses may be limited and that the course is given in the language chosen by the industrial expert(s) in charge of a particular case, either French or English. The following courses at the other participating universities are equivalent to McGill's MECH 687:

- Concordia MECH 6961 or MECH 6971
- École Polytechnique MEC 6612 or MEC 6613 or ELE 6911 or ELE 6912
- Ecole de Technologie Supérieure MGA 900
- Université Laval GMC 6902
- Université de Sherbrooke GMC 791

Students must register for the case study at the university where it is being given and can do so through [CREPUQ's IUT system](#). Even though this course might be taken at another participating university, it is considered as a McGill course. Students registering for this course at another participating university through CREPUQ should also register for MECH 687 at McGill in the same term.

### **MECH 688: Industrial Stage** (applies to ALL M.Eng. Aero specialisations)

A minimum of 18 credits in the Aerospace Program must be completed before the beginning of the stage. The industrial stage is an integral component of the Program which must be completed under the supervision of an experienced engineer in the facilities of a participating company. An evaluation of the candidate's performance during the work period becomes part of the student's record. The member of the Aerospace Engineering Committee in charge of coordinating McGill's involvement in the Industrial Stages is [Prof. Pascal Hubert](#). Students are responsible for obtaining their own stage. One resource student can use is the internship database available through the [McGill Institute of Aerospace Engineering](#). Masters in Aerospace Engineering students can become members of the MIAE upon their request to the MIAE coordinator. Once a member, students can apply for internships and take part in industry networking and other activities provided by the MIAE to its student members. The duration of the Industrial Stage is fifteen (15) weeks. The report should describe your activities during the internship with as much science as possible. Consider a 40 to 50-page report. Include an abstract, introduction, generic chapters, conclusion, and list of references. It should be submitted about three weeks before the date of your expected graduation. It is the candidate's responsibility to ensure that the following two documents are forwarded, by the Supervisor, to the [Graduate Student Affairs Coordinator](#) in the Department of Mechanical Engineering at McGill University:

- 1) A desensitized report of their findings and accomplishments during the Stage be submitted both to the company supervisor and the Aerospace Engineering Committee at McGill.
- 2) A Stage Evaluation Form: [French Form](#) / [English Form](#)

Because there is a limited number of internships available per term and recruitment is competitive, the MIAE cannot guarantee that each student will be successful in obtaining an internship. In the case where a degree candidate is unable to arrange for a suitable Industrial Stage, they are allowed to apply to replace this with the Aeronautics Project Course (MECH 681) towards the completion of their degree requirements. Aeronautics projects are undertaken under the direct supervision of at least one staff member. Examination entails the writing of a report, which is examined internally.

### **Note for M.Eng. Aero Students with a Bachelor Degree from McGill University**

- Technical Complementary Courses taken during the undergraduate program: these undergraduate courses cannot be counted toward the completion of the Master's degree in Aerospace Engineering and must be replaced by other courses approved by the specialization convenor.
- Undergraduate courses taken in addition to the BEng degree program requirements are considered extra courses which can be credited toward the Master's degree in Aerospace Engineering if successfully passed with a minimum grade of B-. This must be clearly marked as 'Extra' in the undergraduate transcript. Upon entry to the Master's program, the student must submit a request to have the credits transferred.

The M.Eng. Aero program must be completed within three years of initial registration, assuming full-time status. If a student is registered as half-time, each pair of terms counts as one full-time term. For students who have registered strictly on a part- or half-time basis throughout their program, the degree must be completed within five years of initial registration.

## 2 Doctoral program

### 2.1 Overview

The doctoral program is a thesis-based, research-intensive advanced program in close collaboration with a supervisor or a group of co-supervisors. The main research supervisor must be a tenure track Faculty member in Mechanical Engineering (Adjunct professor or Emeritus professor can co-supervise the research as well). There is no formal course requirement at the Ph.D. level, but students are encouraged to take courses which are in line with their research project. Ph.D. Students must consult their thesis advisor(s) and thesis advisory committee to determine what courses should be taken.

### 2.2 Milestones

The main milestones of the doctoral program are given below:

Due Dates (expected Timeline):

1. 1<sup>st</sup> Month: TAC (Thesis Advisory Committee)
  2. 1<sup>st</sup> Term: LOU (Letter of Understanding)
  3. 2<sup>nd</sup> Term: MECH 700 Literature Review
  4. 3<sup>rd</sup> Term: MECH 701 Thesis Proposal
  5. 4<sup>th</sup> Term: MECH 702 Preliminary Oral Exam
  6. Progress Tracking Reports at the end of each year (12 months, 24 months, etc.)
- **TAC Within one month of admission** — A "thesis advisory committee" must be formed. This committee must be composed of the supervisor(s), plus two full-time academic staff (one of whom may be outside the Department). Faculty with an associate membership in the Mechanical Engineering Department, but with a primary affiliation in another Department are considered to be outside the Department for the purpose of the Advisory Committee selection.
  - **LOU Within the first term of PhD Program** — Graduate and Postdoctoral Studies (GPS) requires a "PhD Letter of Understanding (LOU)" for all PhD students, which is due in the first term of the program. Both supervisor(s) and student are encouraged to discuss the suggested topics in the Faculty of Engineering's *Mutual Expectation Survey*. The signed LOU by both the supervisor(s) and student is to be uploaded by the student on their myProgress website. File format must be PDF. Access to [myProgress](#) and log in using your McGill Username and Password.
  - **MECH 700 Ph.D. Literature Review** — In the student's second term (within 8 months of initial registration in the program), the candidate is required to submit a review of the literature which is relevant for the thesis project. The written literature review should be five to seven pages in length (non-textual content is prohibited, 5 to 7 pages of plain text only, not including cover page and references) and single-spaced in 12pt Times New Roman font with 2.5cm margins. The document is reviewed by the members of the thesis advisory committee, who make a recommendation to the Ph.D. supervisor(s). The supervisor then makes a final recommendation to the department (Pass or Fail). A "Fail" grade in MECH 700 is considered the same a "Fail" in any other graduate course, see [section 3.4](#).
  - **MECH 701 Ph.D. Proposal** — In the student's third term (within 12 months of initial registration in the program) the candidate is required to submit a Ph.D. Proposal that outlines their plan of research. This document can be no longer than ten pages including references (not including cover page), single-spaced, typed in a 12pt font (preferably Times Roman) with single-column formatting. [Useful tips](#) for the preparation of this document are available. Upon submission, the proposal is reviewed by the members of the thesis advisory committee who then make a recommendation to the Ph.D. supervisor(s). The

supervisor then makes a final recommendation to the department (Pass or Fail). A “Fail” grade in MECH 701 is considered the same as a “Fail” in any other graduate course, see [section 3.4](#).

- **MECH 702 Ph.D. Comprehensive Preliminary Oral Exam** — In the student's third term (within 16 months of initial registration in the program) the candidate is required to take an oral exam regulated by [GPS rules](#). The oral exam can only be scheduled once MECH 700 and MECH 701 have been passed. The entire thesis advisory committee (including all co-supervisors) must attend the MECH 702 exam (Zoom, Skype or Webex are accepted in some cases). The candidate must present, in a maximum of 20 minutes, their plan of research to the thesis advisory committee (this exam is not open to the public) and answer one or two rounds of questions from the committee. In this exam the committee will evaluate the capability of the student to carry out the proposed research. A short deliberation period is then taken by the committee, where a decision and recommendations are taken, usually by consensus. In case a vote is needed, the supervisor(s) hold one vote in total, and each additional committee member hold one vote (the total number of votes cannot exceed three). The candidate then receives feedback on the presentation, and on the quality of their answers (theoretical and experimental if applicable). The candidate may also receive feedback on particular points on their research project, and/or suggestions for additional courses. A “Pass” grade signifies to the candidate that they can continue towards a Ph.D. A “Fail” grade in MECH 702 is subject to the [GPS rules](#) for Comprehensives Exams. Upon first failure, a temporary grade “HH” is assigned. The student has then 4 to 6 months to take the oral exam again. If successful, the “HH” grade is replaced by a “PASS” and the student can continue towards a Ph.D. If the student fails to take the exam again within 6 months or if the oral exam is failed again, the student will receive a grade of F and will be withdrawn from the university.
- **Tracking Reports** — McGill requires annual tracking of doctoral students’ progress toward the degree. The Graduate Student Research Progress Tracking Form is to be used during face-to-face meetings between the doctoral student, supervisor, and at least one other Thesis Advisory Committee Member. See [instructions and form](#). The first tracking report must be submitted 12 months from the admission date, and every 12 months for the rest of the Ph.D. degree. An unsatisfactory report is equivalent to a “F” grade. Two unsatisfactory reports (not necessarily successive) constitute unsatisfactory progress towards the degree and, if recommended by the academic unit, the student will be withdrawn from the University.
- Towards the end of the Ph.D. program, a Ph.D. thesis must be submitted. Thesis submission deadlines, guidelines and all the forms required for thesis submission are posted on the [web](#). The Ph.D. thesis is then reviewed by internal and external examinations. If the thesis is passed, then a final Ph.D. defense can be scheduled.
- A defence of the Ph.D. thesis concludes the doctoral research. The defense is regulated by [GPS rules](#). The time limit to complete a Ph.D. program is six years.
- The Ph.D. program has four years of full-time status starting in Ph.D.1. Because almost all Ph.D. students are admitted at Ph.D.2, the usual period of full-time status is therefore three years. All terms after the full-time status period and before the program requirements are fulfilled are known as “additional sessions.” During these terms, tuition fees are lower. While the duration of this program is contingent on the nature of the research project and the capabilities of the candidate, the minimum time allotted for the completion of the Ph.D. is two years beyond the Master degree. The Ph.D. program must be completed within four years of finishing the residency requirement (*i.e.*, by the end of Ph.D.7). Note that most Ph.D. students are admitted in Ph.D.2; thus, the maximum duration of a Ph.D. program is normally six years. If a student has not fulfilled the program requirements within the timeframes described above, they reach “time limitation.” When this occurs, further registration is not permitted. Students who have reached Time Limitation & submit their thesis by the GPS deadline for initial thesis submission will be registered as Thesis Evaluation for the following term. Students who do not meet the GPS initial submission deadline will not be able to register in the following term & will not have access to labs, library, etc. as they are no longer considered McGill students. Once the thesis is submitted, the student will need

to request for a readmission by completing the [readmission form](#). GPS will confirm with Enrolment Services that the initial thesis has been received & Enrolment Services will then readmit the student in Thesis Evaluation.

### **3 Special situations**

#### **3.1 Credit for previous studies**

Incoming graduate students in the Department of Mechanical Engineering can request the transfer of credit for graduate courses taken before their entry into the program. The request to transfer credits should be submitted to the graduate program coordinator in the first term of the program. These courses must be pertinent to the degree being undertaken. Credit cannot be given for courses taken for another completed degree. Up to one-third of coursework credit may be transferred from institutions outside McGill. Coursework credit does not include thesis, project or stage credits. Transfer of credit for courses taken while already in our program must be requested before the course is taken. For example, a B.Eng. student planning to enter a M.Sc. program may take a graduate-level, “extra” course during their final undergraduate year to reduce their master's course load; however, the credit transfer must be requested before taking the course. Students wishing to request a transfer of credits should do so in writing to the Associate Chair of Graduate Student Affairs. In the request, the student should state: the program they are in at McGill and their starting date, the course they would like to request credit for or exemption from (e.g., a complementary or specific core course, bearing in mind that an exemption from core courses is reviewed more critically), and when and where the course they want credited was taken. Required supporting documents include:

- A letter or email supporting the request written by the supervisor and directed to the Associate Chair (*i.e.*, for thesis students only).
- An official transcript showing the course taken and the grade obtained.
- The course description.
- Proof--often provided by the transcript--that the course was not taken for credit toward another degree.

Once this request and supporting documentation are received, the request is reviewed, and the Associate Chair notifies the student of the committee's decision. In the case of approval, a Credit/Exemption Form is submitted to Graduate and Postdoctoral Studies.

#### **3.2 Taking courses at other Universities**

It is possible for Mechanical Engineering graduate students to register for a limited number of courses at other local universities for credit towards their program. The maximum number of courses outside of McGill for which a student can register is one-third of coursework credit (which does not include Thesis, Project, or Stage credits). Note that this one-third must include the total number of transfer credits (including the ones from previous studies). Students can apply [online](#) to take courses at other universities. Students should undertake this IUT (Inter-University Transfer) approval and registration process as early as possible, but at latest, two weeks before the start of term. You are strongly advised not to register for a course at another university in your last term of studies, as the grade processing may delay your graduation.

#### **3.3 Request for reread**

Students have the right to request a review of a final exam mark ('reread'). If the course is at the 500 level, the Faculty of Engineering governs the case, and the request should be directed to the Student Affairs Office. If the course is a 600- or 700-level course, the request should be directed to Graduate and Postdoctoral Studies (GPS). Details of the procedure are laid out on the GPS website and in the most recent University Calendar. Note that a student requesting a reread may be charged a fee.

### 3.4 Course Failure and unsatisfactory Progress Tracking Report

In the event of a first course failure or a first unsatisfactory Progress Tracking Report, specific steps must be taken as described in the [GPS policy](#). In the event of a first course failure (i.e., a grade less than B-, J grade, or K or L grade):

- Master of Science: Students can retake the failed course or substitute the failed course by an equivalent course. The selection of an equivalent course must be approved by the Research Supervisor (email supervisor the course number and course description).
- Master of Engineering:
  - Core courses: Students must retake a failed core course.
  - Complementary courses: Students have the option of retaking or taking another course. Both of which are of the student's choice.
- Ph.D.: Students will require the Academic Committee to decide if the student should retake the course or substitute the failed course by an equivalent course.

A graduate student will be withdrawn from the University if they:

- Fail two Courses (i.e. two different courses, one failed Course plus a failed repeat of the same Course or one failed Course and a failed supplemental exam for that Course); or
- Obtain two unsatisfactory Graduate Student Research Progress Tracking Reports and the academic unit in which the student is registered recommends that they be withdrawn; or
- Fail one course, obtain one unsatisfactory Graduate Student Research Progress Tracking Report and the academic unit in which the student is registered recommends that they be withdrawn.

### 3.5 Changing Graduate Programs

The Department allows students to transfer between programs subject to certain conditions. Fast-track from M.Sc. to Ph.D.: An outstanding student may request a transfer (“fast-track”) into the Ph.D. program without submitting a master's thesis, provided that the following requirements are met:

- The application must be made within 15 months of initial registration in the M.Sc. program.
- At least four courses at the 500 level or above toward the M.Sc. requirement were completed excluding the Thesis courses (MECH 609, MECH 691, MECH 692, MECH 693, MECH 694 & MECH 695).
- The courses were completed (or will be completed) in no more than two terms.
- The student has a cumulative GPA of 3.7 or higher.
- The supervisor supports the transfer.

The request must include a current CV, Personal Statement, a transcript of the student's McGill grades and the letter of support from the supervisor. It is reviewed by the Graduate Admissions Committee for evidence that the student is academically outstanding and has strong research capabilities. If the request is approved, the student will be asked to submit an application to the Ph.D. program, and a decision form will be sent to Graduate and Postdoctoral Studies to proceed with the transfer. Within the first term of the transfer, the student must complete any outstanding coursework credit (16 credits) from the Masters program and must complete the Literature Review (MECH 700). The normal Ph.D. course requirements must be fulfilled within one year of the transfer.

### 3.6 Leave of Absence

A student may [request a leave of absence](#) for health, maternity or parenting reasons. In special circumstances, a leave may be granted when a close family member is ill. A medical certificate must accompany a request for a leave. Leaves may be granted by Graduate and Postdoctoral Studies for a maximum of 52 weeks. During a medical leave, the student may not take courses nor expect guidance on their research. During a maternity or parental leave, the student may not take courses.

## 4 Tuition fees and financial support

### 4.1 Tuition fees

Information on tuition fees and other cost of living expenses is available [online](#). The department requires that each Ph.D. student is supported financially for a minimum of \$16,500/year for the first three years of their studies. A listing of available internal and external awards may be found at the links:

- <http://www.mcgill.ca/mecheng/grad/finance/awards>
- <https://www.mcgill.ca/gps/funding/opportunities>

### 4.2 Internal scholarships

These [internal scholarships](#) are provided by the department of Mechanical Engineering or the Faculty of engineering:

- McGill Engineering Doctoral Award (MEDA)–Domestic
- McGill Engineering Doctoral Award (MEDA)–International
- McGill Engineering Doctoral Award (MEDA)–Leveraged
- McGill Engineering International Tuition Award (MEITA)
- Graduate Excellence Fellowships (GEF)
- Masters Top-up Award
- McGill Engineering Undergraduate Student Masters Award (MEUSMA)
- Mobility Award
- Michael P. Paidoussis Award
- Loans and bursaries

### 4.3 External scholarships

These scholarships are offered by external agencies or organization. The list below only list opportunities from the Natural Sciences and Engineering Research Council of Canada (NSERC) and the Fonds de recherche du Québec – Nature et technologies (FRQNT). Other [funding opportunities](#) are:

- NSERC Canada Graduate Scholarships Masters (CGS-M)
- NSERC Postgraduate Scholarships-Doctoral (PGS-D)
- NSERC Vanier Scholarship
- FRQNT B1
- FRQNT B2
- FRQNT Merit Scholarship for Foreign students (PBEEE)
- FRQNT Doctoral research scholarships program for foreign students (DE)

## 5 Graduate Association of Mechanical Engineering Students (GAMES)

GAMES-McGill is the Graduate Association of Mechanical Engineering Students at McGill. All graduate students and postdoctoral fellows in the department are members of this association.

### 5.1 History

The GAMES came about, a few years ago, as a result of initiatives taken by some old students who felt that there was a need for a formal association—a kind of a support group for all fellow graduate students in the department. The group was formally established only in 2004, but soon after, it became highly functional and began offering a range of extracurricular activities that were suited to benefit all kinds of personalities (outdoors, indoors, extreme, relaxed and laid-back, etc.). In May 2006, GAMES was recognized by the Post Graduate Student Society (PGSS) as the official association of graduate students in our department.

## **5.2 Purpose**

Ever since their initial conception, the GAMES organizers have never allowed research or classes to get in the way of having a bit of fun and “games”-though, always after a hard day's work! Through common events, typically of social nature, we strive to make the student-staff and the student-faculty relations work better; this not only results in a very friendly and trustful environment within the department, but it also fosters higher academic achievement by students. Aside the social aspect, GAMES-McGill also provides official representation to all of its members. It gives to the graduate and postdoctoral researchers working within the department not only a sense of family, but it also promotes a sense of safety among its members so that they may easily seek help if such support is ever needed.

## **5.3 Structure and Responsibilities**

The day-to-day operation of GAMES is lead by a team of executives. These are fellow students who are elected annually, and together as a team they share fulfilling of the various responsibilities that go with the smooth operation of the organization. They are your official representatives to various university bodies and committees, both departmental and university wide. They are responsible for voicing your views and opinions on the Council floor of the PGSS. They are also responsible for liaising between you and the department in case of conflicts if you ever require such help. But mostly, they are just a group of engineers who are charged with the ultimate responsibility of making your short stay at McGill a joyful one.

## Appendix A. MECH 609 Graduate Seminar

All candidates for a Master's degree (except those in the Aerospace Program) must present one seminar dealing with their research topic and attend at least twelve seminars presented by other Masters students. Each of the talks in a session will include a 15-17-minute presentation, a 5-minute Q&A and a 5-minute evaluation/transition period (students can complete evaluation forms during the talk and the Q&A). Students planning to present their seminar are expected to reserve a slot, well ahead of time. The sessions for a term will be announced in the beginning of the academic year or at the end of the previous term. Students can sign up for a slot on a first-come, first-served basis as soon as the session dates are announced. *An abstract approved by the student's supervisor along with their commitment to attend at clearly specified time slot(s) is required to secure a slot.*

- Once seminar date(s) and time slots are announced, agree with your supervisor on the date/time and abstract of your presentation. The supervisor's presence at the seminar during your presentation is required.
- Prepare an abstract using the [template](#) provided and have it approved by your supervisor.
- Submit your abstract by [e-mail](#) with copy to [Prof. Changhong Cao](#) and your supervisor(s), including in your e-mail your McGill ID number and stating clearly i) that your supervisor(s) has (have) approved it and ii) the time slot(s) your supervisor(s) is (are) committing to attend to. Copying your supervisor(s) ensures their approval and their commitment to attend at the specified date and time(s).
- If by the time of your submission, the time slot(s) that your supervisor(s) can attend are not available anymore, you will have to restart this process for another seminar date. *If you do not receive a confirmation, you do not have a time slot.*

Students will only get credit for attending a talk if they complete and return an evaluation *personally* to the seminar convenor *at the end of each talk*; no evaluations will be accepted at a later time, even during the same seminar session. This evaluation will be based on the quality of the seminar *presentation* and not on the quality of the research conducted. The following specific criteria will be used by the course administrator in determining the seminar grade:

- Content and organization: problem statement, objectives, literature review, methodology, results, future work; quality/legibility of slides.
- Quality of presentation: overall demeanor of presenter, clarity of speech, enthusiasm for the work, usage of time allocated.
- Answers to questions: clear, knowledgeable, professional.
- Audience engagement: was the presentation sufficiently engaging and interesting to motivate several questions from the audience.
- Peer review based on the last rubric on the evaluation forms collected from students attending the seminar. This form will also be used to ascertain the attendance of students at these seminars.

The specific weighting of the above criteria will be at the discretion of the course administrator. A "Best Seminar of the Year" award will be granted by the course instructor to recognize excellence in presentation. The criteria for selection for this award will be the same as the evaluation scheme above.



## Appendix B. Master thesis preparation and submission rules and guidelines

Your Master thesis must conform to the [GPS guidelines](#) and be submitted within the [deadlines](#). The following provides a guideline of the thesis submission process:

- 1) **Nomination of Examiner (NOE) form** — Within four to six weeks before initial submission, you and your supervisor must select an examiner (*i.e.* usually at McGill) who will evaluate your Master thesis. This information must be submitted in [myThesis](#). The reviewers must have the necessary expertise to evaluate your thesis. Please read the guidelines on [conflict of interest](#). Your Master supervisor should contact the potential examiner to ensure their participation. Complete the NOE information in [myThesis](#) (a list of three (3) names is required to be entered as potential examiners). [Guidelines](#) on selecting a thesis examiner. You must have fulfilled all the other requirements of the program in order for the NOE to be approved. Once the form is approved by the Graduate Program Director, an official invitation is sent out to the examiner through [myThesis](#) using the Intent to Submit Date you provided in [myThesis](#). *Please stick to the Intent to Submit Date* you entered in [myThesis](#) to respect the time of the Examiner as they will agree to examine the thesis based on this date provided.
- 2) **Your initial Master thesis submission** — Submission is done in [myThesis](#). [Detailed instruction](#) on initial submission.
- 3) **Thesis evaluation and outcomes** — Your thesis package will then be processed by GPS and evaluated by the internal reviewer, which typically takes 6 to 8 weeks. The review consists of an overall evaluation of the work with an evaluation grid, a list of specific written comments and an overall recommendation: (passed or not passed), and (requests for minor revisions for “passed”, request for “major revision” for “not passed”). The possible outcomes of the evaluation are:
  - o PASSED: If the reviewer recommends a “passed” then you will be allowed to proceed to the final submission steps. This recommendation may come with a list of minor comments and requests for minor revisions from the reviewers.
  - o NOT PASSED: If the reviewer recommends a “not passed”, there is usually a list of major changes to address. A revised Master thesis must be submitted. Carefully read the [detailed instructions](#).
- 4) **Final submission** — Once your final thesis is ready it must be submitted online on GPS’ e-thesis system. In addition, [email](#) a copy of your final thesis. Submission before one of GPS’ three yearly deadlines ensures that you can attend convocation in the next term. [Detailed instruction](#) on final submission using e-thesis.

## Appendix C. Ph.D. Thesis preparation and submission rules and guidelines

Your Ph.D. thesis must conform to the [GPS guidelines](#) and be submitted within the [deadlines](#). This appendix provides a guideline of the thesis submission process:

- 1) **Nomination of Internal & Examiner (NIE) form** — About six weeks before initial submission, you and your supervisor must select an internal examiner (*i.e.* usually at McGill) and a list of three potential external reviewers (*i.e.* outside McGill) who can evaluate your Ph.D. thesis. This information must be submitted in a NIE form. The examiners must have the necessary expertise to evaluate your thesis. Please read the guidelines on conflict of interest ([Internal Examiner / External Examiner](#)). Do not contact these examiners. [Submit](#) your [NIE form](#) to the department by email.
- 2) **Nomination of Examiners (NOE) form** — Within four to six weeks before initial submission, you must submit the confirmed examiners in [myThesis](#). Only the confirmed Internal & External Examiner names need to be entered in [myThesis](#). You must have fulfilled all the other requirements of the program in order for the NOE to be approved. Once the form is approved by the Graduate Program Director, an official invitation is sent out to the examiners through [myThesis](#) using the Intent to Submit Date you provided in [myThesis](#). *Please stick to the Intent to Submit Date* entered in [myThesis](#) to respect the time of the Examiners as they will agree to examine the thesis based on this date provided.
- 3) **Your initial Ph.D. thesis submission** — Submission is done in [myThesis](#). Once initial submission is complete, you will receive an oral defense committee form (ODC form). You will then have the opportunity to start the scheduling process for your Ph.D. defense by suggesting availability by completing the form and [submit back](#) to the Department. To allow time for processing and reviewing your initial thesis, you should plan on your oral defense not earlier than 10 weeks after the initial submission. The department is responsible for scheduling the defense. Please refer to [detailed instruction](#) on initial submission and to the [GPS Rules on Ph.D. Oral Defense](#), including membership of the Oral Defence Committee.
- 4) **Thesis evaluation and outcomes** — Your thesis package will then be processed by GPS and evaluated by the internal and external reviewers, which typically takes 6 to 8 weeks. The review consists of an overall evaluation of the work with an evaluation grid, a list of specific written comments and an overall recommendation: (passed or not passed), and (requests for minor revisions for “passed”, request for “major revision” for “not passed”). The possible outcomes of the evaluation are:
  - PASSED: If the internal reviewer and the external reviewer both recommend a “passed” then you will be allowed to proceed to the Ph.D. defense. This recommendation usually comes with a list of minor comments and requests for minor revisions from the reviewers.
  - NOT PASSED: If one of the reviewers recommends a “not passed”, then the oral defence is cancelled. Usually, major changes to the thesis are required and a revised Ph.D. thesis must be submitted. See the [detailed instructions](#).
- 5) **Oral Defence, evaluation and final submission** — The final step of your doctorate degree is the Ph.D. oral defense. If you pass the oral defense, you will receive a list of revisions for your thesis. Once your final thesis is ready it must be submitted online on GPS’ e-thesis system. In addition, [email](#) a copy of your final thesis. Submission before one of GPS’ three yearly deadlines ensures that you can attend convocation in the next term. Please refer to the [detailed information](#) on the Ph.D. oral defense and [detailed instruction](#) on final submission using e-thesis.