



Department of Mechanical Engineering

Graduate Program Handbook 2022/2023

Updated: July, 2022



Innovation in Education ● Excellence in Research ● Quality of Student Life

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Dept. of Mechanical Engineering (2022/2023)

Dr. Marilyn Lightstone (Chair)

- Email: lightsm@mcmaster.ca
- Point of contact for any issues that cannot be resolved by the Associate Chair (Graduate).

Dr. Chan Ching (Associate Chair, Graduate Studies)

- Email: chingcy@mcmaster.ca
- First point of contact for all graduate program academic matters.

Ms. Leslie Kocsis (Department Administrator)

- Email: kocsisl@mcmaster.ca
- First point of contact for all financial matters.

Ms. Lexie Li (Graduate Program Administrator)

- Email: mechgrad@mcmaster.ca
- First point of contact for all graduate program administrative matters.

Mr. John Colenbrander (Facilities Manager)

- Email: colenbjw@mcmaster.ca
- First point of contact for laboratory or workshop matters.

Mr. Daniel Deacon (Graduate Student Representative)

- Email: deacond@mcmaster.ca
- Point of contact for graduate student networking events and department liaison.

Disclaimer

In the event of a discrepancy between the information provided in this handbook and The School of Graduate Studies Calendar, the latter prevails.

QUICKLINKS – UNIVERSITY POLICIES AND REGULATIONS

- The School of Graduate Studies Graduate Calendar (2022-2023)
 - <https://academiccalendars.romcmaster.ca/index.php?catoid=46>
- Dept. of Mechanical Engineering – Graduate Student Resources
 - <https://www.eng.mcmaster.ca/mech/resources#graduate-students>
- Policies, Procedures and Guidelines (Academic Dishonesty, Appeals, etc.)
 - <https://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf>
- Student Code of Conduct:
 - <https://secretariat.mcmaster.ca/app/uploads/Code-of-Student-Rights-and-Responsibilities.pdf>
- Copyright Policy:
 - https://milo.mcmaster.ca/faqs/copyright_mac
- Discrimination, Harassment & Sexual Harassment Prevention and Response Policy:
 - <https://secretariat.mcmaster.ca/app/uploads/Discrimination-and-Harassment-Policy.pdf>
- Research Integrity Policy
 - <https://secretariat.mcmaster.ca/app/uploads/Academic-Integrity-Policy-1-1.pdf>
- Thesis Completion and Defence
 - <https://gs.mcmaster.ca/current-students/completing-your-degree/>
- Collective Agreement for TA/RA in lieu of TA:
 - https://cupe3906.org/files/2019/12/Tentative-Agreement-CUPE-Unit-1_Nov-19_19_FINAL.pdf

CONDUCT EXPECTATIONS

As a McMaster graduate student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of our living, learning and working communities. These expectations are described in the *Code of Student Rights & Responsibilities* (the “Code”). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, **whether in person or online**.

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students’ access to these platforms.

ACADEMIC ACCOMMODATIONS OF STUDENTS WITH DISABILITIES

Students with disabilities who require academic accommodation must contact [Student Accessibility Services \(SAS\)](#) at 905-525-9140 ext. 28652 or sas@mcmaster.ca to make arrangements with a Program Coordinator. For further information, consult McMaster University’s [Academic Accommodation of Students with Disabilities](#) policy.

Note: Approved accommodations of previous undergraduate students at McMaster **do not** automatically apply during graduate studies. Students needing accommodations should return to SAS soon after commencement of their graduate program to implement or update your student status and to activate accommodations.

ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the [RISO](#) policy. Students should submit their request to their Faculty Office **normally within 10 working days** of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

COPYRIGHT AND RECORDING

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, **including lectures** by University instructors

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

EXTREME CIRCUMSTANCES

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.

PLAGIARISM-CHECKING SOFTWARE (OURIGINAL)

Effective October 1, 2021 the university requires all Master's and Doctoral theses to be reviewed by Ouriginal, a plagiarism-checking software, before being seen by an external reviewer (Doctoral) or the finished copy submitted (Master's). This requirement can be found in Section 3.2.3 of the Graduate Calendar and the University's Research Plagiarism Checking Policy (found on the Secretariat website). This requirement is not meant to catch plagiarism; but rather, prevent it. By helping students detect sections of text requiring revision before the document is released to the public, the use of this tool can avoid otherwise serious allegations.

Each faculty member has access to the software through AVENUE and is responsible for providing access to their students. Student and supervisor will work together to revise any sections of the thesis that may be overlapping with previously published content that the student does not have permission

to copy; sandwich theses are expected to have a substantial amount of already published content, but in this case the student should have sought, and been granted, permission to use it in their document. The student's supervisor is responsible for confirming the thesis is ready to submit. Videos and guides on using Ouriginal are located on the School of Graduate Studies website:

<https://gs.mcmaster.ca/current-students/resources/ouriginal-urkund-plagiarism-software-testing-phase/>

QUICKLINKS – FINANCIAL MATTERS

- Scholarships Database
 - <https://gs.mcmaster.ca/current-students/scholarships/>
- Payroll Information
 - <https://hr.mcmaster.ca/employees/payroll/teaching-assistants-payroll-information/>
- Pay Statement Guide
 - <https://hr.mcmaster.ca/app/uploads/2019/06/pay-statement-explained-2014-10-20-1-49-1.pdf>
- Tuition Fees
 - <https://registrar.mcmaster.ca/tuition-fees/#tab-2>
- University Health Insurance Plan (UHIP) for International Students
 - <https://studentsuccess.mcmaster.ca/international-students/health-insurance/>

SCHOLARSHIPS, FELLOWSHIPS, BURSARIES and OTHER AWARDS

Most graduate students admitted to the M.A.Sc. and Ph.D. programs in Mechanical Engineering will receive financial support in the form of a teaching assistantship and a departmental scholarship. The minimum level of support varies from year to year. Graduate students are encouraged to apply for both internal and external funding opportunities that may be available to them. (Keep an eye on your email; most of these opportunities will be advertised through that medium.) Awards—such as CGS, PGS and Vanier—are announced in the Fall term, as well as most donor-funded awards. OGS awards are announced in the Winter term. Department-specific awards are often announced between the Winter and Spring terms.

If a graduate student holds a major award (NSERC, CGS-M, CGS-D, PGS-D, OGS, QEII GSST, Vanier), the total stipend provided by the program cannot be reduced by more than \$2500 per term for each term in which the student holds the award.

TEACHING ASSISTANTSHIP

First Time Teaching Assistants (TA)

McMaster University requires all first-time TAs to take five hours of training at the start of their first term of employment (i.e. first time a student starts to TA). Those who do not complete all five hours will not receive payment for the training and may, at the discretion of McMaster's Human Resources, incur disciplinary action. All new TAs in Engineering will be required to take MacPherson's online **anti-oppression training** module in AVENUE, which takes two hours to complete. A quiz at the end of the

module will record completion of the course. In addition, Engineering TAs MUST take the three-hour virtual (Fall term) or in-person (hopefully Winter term) **Engineering TA training workshop**. Engineering has carried out this workshop for over three years, consisting information on the professional requirements of a TA and many exercises to help new TAs understand the expectations of marking and running tutorials in the Faculty. Engineering TAs **may NOT substitute** the workshop with other courses through MacPherson, though TAs are welcome to take additional courses through MacPherson's online offerings with no compensation. Once a TA receives payment for the five hours of training, they will receive no further compensation for any training modules taken; either in the first term or later.

Returning Teach Assistants for 2022/2023 academic year

If for any reason, a returning TA has not taken the anti-oppression training (away on a leave of absence or coop placement), the TA will be required to take the two-hours **online anti-oppression training** module through MacPherson and will receive two hours of pay accordingly. While additional training is encouraged, it will not be compensated.

A useful guide is provided here: http://cll.mcmaster.ca/resources/pdf/TA_guide.pdf

You must complete the Faculty and Department TA training. Before commencing your Teaching Assistantship duties you need to complete and submit the following forms in consultation with the course instructor.

1. TA hours of work form: https://hr.mcmaster.ca/app/uploads/2019/02/TA-Hours-of-Work-Form-August-2021_Fillable-Form.pdf
2. TA performance expectations sheet: https://www.eng.mcmaster.ca/mech/sites/default/files/ta_performance_expectations_form.pdf

Toward the end of your TA assignment, you will be expected to complete a [TA Exit Meeting](#) with your TA supervisor in which you and your supervisor will discuss the extent to which performance expectations were met.

Outstanding Teaching Assistant Awards

Every semester, the department will recognize TAs who have excelled in their assignments with an Outstanding Teaching Assistant Award. These awards are based on recommendations from the TA supervisor and student reviews.

GRAD PAY

In order to receive research scholarships and TA income, you will need to submit all the payment forms listed under "[Additional Payment Information](#)" (scroll about halfway down the page) to hr.mcmaster@mcmaster.ca. Research scholarships are paid as one lump sum two or three weeks into the start of a new term; TA income is paid biweekly during the term(s) in which you are a TA.

In order to receive graduate/department bursaries, you will need to go to your [Mosaic Homepage](#) (log in with your MacID and password), and click on the tile that says "Enrol in Direct Deposit (Student)"; follow the steps indicated. Bursaries are paid as one lump sum two or three weeks into the start of a new term.

If you do not see this tile, please log into University Technology Services' (UTS) [Client Services Portal](#) (again, using your MacID and password) and select:

1. "General Requests"; then
2. "Report a Problem".

3. Detail your issue in the blank field, then click “Create”. Please monitor the portal for confirmation that the tile has been added to your Mosaic Homepage. Detail your issue in the blank field, then click “Create”. Please monitor the portal for confirmation that the tile has been added to your Mosaic Homepage.

***IMPORTANT:** If you complete any of the previous steps improperly and/or are not fully enrolled in the Fall 2022, Winter 2023 and Spring/Summer 2023 terms by August 29, 2022, your payments will be delayed until a correction is made.

UNIVERSITY HEALTH INSURANCE PLAN (UHIP)

UHIP is a mandatory, comprehensive health insurance plan that provides health coverage for international and incoming exchange students. UHIP covers medically necessary doctors and hospital visits within Ontario for international students, incoming exchange students and dependants (spouse and children). For more information, please visit:

<https://studentsuccess.mcmaster.ca/international-students/health-insurance/>

Other topics, such as cost of living and tuition fees, can be found on [The School of Graduate Studies' website under "Cost of Living"](#) or on [The Registrar's website under "Graduate Fees": Tuition and Supplementary Fees.](#)

THESIS WRITING AND ENGLISH LANGUAGE SKILLS DEVELOPMENT

If you are having difficulty with the English language and thesis writing, there are several on campus resources available to help you. The following are particularly useful:

McMaster Office for the Development of English Language Learners (MODEL). This is a FREE service designed to help students with the English Language. They offer training, workshops and support to meet student needs of all academic backgrounds and English language proficiency. You can get more information at [MODEL | MELD Office \(mcmaster.ca\)](#).

The School of Graduate Studies also offers help with Thesis writing. Often, the Thesis writing can be the stumbling block for students to graduate on-time. Using their resources at the start of one's graduate study can significantly help with the writing process. Please check out their resources at [Graduate Writing – School of Graduate Studies \(mcmaster.ca\)](#).

Graduate Program Regulations - Enrollment

MATTERS WITH REGARD TO ENROLLMENT ([Section 2.5 of the Graduate Calendar](#))

1. Full-Time Student

A full-time student is one who is studying on a full-time basis; treating studies like a full-time job; attending to coursework and research in a professional manner; being in consultation with and available to their supervisor at regular intervals (daily and/or weekly by mutual agreement) to monitor progress.

2. Part-Time Student

A part-time student is one who usually has a full-time job outside the university, but wants to work towards his or her graduate degree on a part-time basis. A part-time student is limited to 3 graduate courses per academic session (Sept 1 – Aug 31) and will usually take more time to complete the degree (M.A.Sc. program: up to five years – 60 months - from original date of registration if student began as “part-time”; Ph.D. program: up to eight years – 96 months – from original date of registration if student began as “part-time”). Part-time students are not eligible for financial support from the department; nor teaching assistantships; nor scholarship equivalent.

3. Status Changes (FT to PT; PT to FT; Withdrawal; Re-admission to Defend; Program Transfers, Leaves of Absence; Full-time Off-campus)

Students who wish to change their status (full-time to part-time; part-time to full-time; transferring from master’s to Ph.D.; withdrawal from the program; going on leave of absence, studying full-time off-campus), and former students who wish to be readmitted to the program, are expected to complete paperwork within a timeframe that permits their change to be effective on the first day of the next term (September 1st, January 1st or May 1st). Please see the graduate program administrator at least one month in advance of an expected transition to ensure that all paperwork is completed in a timely manner.

4. Engineering Co-op Program

The Engineering Co-op Program is available to full-time students in the Faculty of Engineering that can allow them the opportunity to acquire work experience before graduation. Placements for master’s students are for a duration of 8 months; placements for Ph.D. students are for a duration of 12 months. For more information, please visit [The Engineering Co-op Program’s website](#).

5. Industrial Ph.D. Program

The Industrial Ph.D. program allows full-time doctoral students the unique opportunity to work in the field *and* complete study toward their doctoral degree simultaneously. For more information on the Industrial stream, please visit the Faculty of Engineering’s page on the “[Industrial Ph.D.](#)” program.

MASTER of Applied Science (M.A.Sc.)

Program Requirements

The minimum course requirement is four half-courses (50% of which must have the MECHENG course code); three of the four courses must be at the 700 level. Courses delivered by departments in the School of Engineering and Applied Sciences (listed here: <https://www.eng.mcmaster.ca/school-engineering-applied-sciences>) do not require a petition to count toward degree requirements; however, they cannot replace a MECHENG course.

Incoming graduate students to the Faculty of Engineering are required to complete a [career planning report](#) **within their first year of study**. Students must first book a career planning session with the faculty's career development specialist before submitting a career planning report. The report should not exceed 2 pages and must be submitted to the department's graduate program administrator to be evaluated by the associate chair (graduate).

Students are required to present a thesis that embodies the results of original work that the candidate has completed and demonstrates competence in Mechanical Engineering. Only the standard format thesis, as described in the document "[Completing your Thesis - Master's](#)" (available from the School of Graduate Studies website), will be accepted for examination. An oral defence of the thesis is required.

Additional Requirements:

- ME 758 "Graduate Seminars in Mechanical Engineering.": Mandatory annual registration in Mosaic for Term 1 and Term 2 of every academic session. Please visit [Avenue to Learn](#) for more details.
- SGS 101 and SGS 201 (online courses): Mandatory registration in Mosaic at the start of a student's program only. Must pass and abide by these online SGS courses. Connect to Avenue to Learn to complete these online courses at: (<http://avenue.mcmaster.ca/>).
- Job Hazard Analysis (JHA) form ([see JHA under "Quick Links"](#)): Must complete a job hazard analysis (JHA) form with your supervisor and read and follow the appropriate Standard Operating Procedures (SOPs). Note: In the context of safety, all graduate students are considered "workers".
- Core Health and Safety courses: Must successfully complete and abide by the following core health and safety courses (available online here: <http://www.workingatmcmaster.ca/eohss/training/>):
 - Health and Safety Orientation
 - Asbestos Awareness
 - Ergonomics
 - Fire Safety
 - Slips, Trips and Falls
 - WHMIS 2015
 - Violence and Harassment
 - COVID-19 Awareness Training

Supervision

Supervision of M.A.Sc. students is governed by the School of Graduate Studies regulations as outlined in [Section 3.1 of the Graduate Calendar](#).

Supervisory Meeting:

The supervisor shall meet with the student between 9 months to 12 months of commencement of the program for a formal review of progress. The student will complete the M.A.Sc. supervisory committee report form and submit to the supervisor at least one week in advance of the meeting. The supervisor will complete the form and submit it to the Department graduate program administrator at the end of the progress review meeting.

Student Responsibility:

1. Set up the meeting with supervisor within 12 months of starting.
2. Complete the student sections of the M.A.Sc. supervisory committee report form. (Details of progress towards meeting degree requirements since beginning of program).
3. Submit the form with a critical literature review of your research area to your supervisor at least one week before the meeting.

Supervisor responsibility:

1. Complete Part A: Progress made towards meeting degree requirements.
2. Complete Part B: Specific goals for next number of months.
3. Complete Part C: Areas for improvement.
4. Provide an overall assessment.
5. Review the form with student, sign and submit to the graduate program administrator.

M.A.Sc. Examination Committee

Each M.A.Sc. student must successfully defend their thesis in an oral examination before a committee proposed by the supervisor and approved by the Department Chair or their delegate. A member of the committee, other than the supervisor, will be appointed to chair the committee.

The committee shall be composed of 3 (three) members, including the supervisor. In the case of co-supervision, the committee will consist of 4 (four) members including the supervisors.

Students currently enrolled in the M.A.Sc. program may be transferred to the Ph.D. program before they complete their M.A.Sc. degree requirements. Regulations governing this scenario are stated in the current "[School of Graduate Studies Calendar, Mechanical Engineering, Ph.D.](#)" If a student is granted permission to enter the Ph.D. program while concurrently completing the M.A.Sc. program, the School of Graduate Studies requires the student to complete all requirements for the M.A.Sc. program (including defence and submission of thesis for binding) within two (2) months of the date of entry into the Ph.D. program. Students who do not complete the requirements for the master's degree within the two months will lose their status as a Ph.D. student and be returned to master's status.

M.A.Sc. Thesis Defence

The thesis defence starts with the candidate's presentation of the main elements of the thesis, including the relevance of their work, approach, samples of the most important findings, and contributions. The presentation should not exceed 20 minutes. This is followed by one round of questions and another round

of follow-up questions, as appropriate. The duration of the master's defence (including the candidate's presentation) is expected to vary from 1¼ to 1¾ hours, but it normally should not exceed 2 hrs. If the examining committee is not satisfied with the candidate's performance in the thesis defence, the candidate must retake the defence after completing any thesis revisions which may be recommended by the examining committee. The student must be informed in writing of the conditions they must meet to be able to succeed in the second and final defence.

M.A.Sc. Defence Procedures

Supervisor:

- Set up the examination committee by selecting two additional faculty members (internal or external) who are adequately familiar with the thesis research area.
- Inform Graduate Program Administrator using the attached form for approval of examination committee. The examining committee approval form should be completed and approved at least 2 weeks before the proposed defence date.
- After approval of the examination committee, finalize the date and time of defence, check room availability and email committee confirming defence, including date, time and room location.

Graduate Administrator:

- Have examination committee approved by the Department Chair or delegate.
- Post defence notification on Mech Eng notice board.
- Email announcement to Faculty, Graduate Students, and Postdoctoral Fellows.
- Complete the following and provide them to the Chair of examination committee one day prior to defence.
 - i. Report of Examining Committee for Master's Thesis Examination-ORAL Defence
 - ii. Report of Examining Committee on Master's Thesis
 - iii. Licence to McMaster University
 - iv. Master's Thesis – Final Submission Sheet
- Complete the following forms and provide them to the Supervisor one day prior to defence.
 - v. NSERC Appendix D (Form 100)
 - vi. Department Exit Checklist

Chair of Examining Committee:

- Return the following completed forms to the Graduate Administrator:
 - i. Report of Examining Committee for Master's Thesis Examination-ORAL Defence
 - ii. Report of Examining Committee on Master's Thesis
 - iii. Licence to McMaster University

Student:

- After approval of the defence committee, thesis candidates are required to use plagiarism-checking software, [Ouriginal](#), before submitting. Please follow the instructions on [The School of Graduate Studies' website](#) to obtain access to this software.
- Following the Ouriginal check, the student will distribute the thesis to the examining committee about 14 days (but no later than 10 days) before the defence date. Submissions later than 10 days before the defence date shall require consent of all members of the defence committee.
- Return the following completed forms to the Mechanical Engineering Department
 - i. NSERC Appendix D (Form 100)
 - ii. Department Exit Checklist
- Please review the SGS Final Submission – Final Thesis Checklist ([Master's Degree – Thesis>Submit](#)):

Convocation:

Detailed information regarding convocation, including deadlines and the timing of ceremonies, is available on the Office of the Registrar's website: <http://registrar.mcmaster.ca/category/grad/>. Please review the checklist items.

Transferring from M.A.Sc. to Ph.D. Without Completing M.A.Sc. Degree

Exceptional students enrolled in the M.A.Sc. program may be recommended for a transfer to doctoral studies without needing to complete their master's degree. The procedure regulating M.A.Sc. to Ph.D. transfers is provided below.

M.A.Sc. students transferring to Ph.D. will need to have:

1. completed a minimum of TWO terms of study in the M.A.Sc. program;
2. completed a minimum of TWO half courses at the 700 level with a minimum average of A- (McMaster 10/12);
3. completed their M.A.Sc. supervisory meeting and received a rating of EXCELLENT on their report; and
4. garnered a strong letter of support from their supervisor.

The letter of support and a completed [Change of Status Form](#) need to be submitted to the graduate program administrator to be processed by the Department before The School of Graduate Studies (SGS) can authorize the transfer. Please note that the **effective date of the status change should be the first day of the following term.**

Accelerated MASc Option

An Accelerated Option is also available to students currently enrolled at McMaster as undergraduate students in the Mechanical Engineering Department whereby the M.A.Sc. degree may be completed in 16-20 months of fulltime study. In exceptional circumstances, students from other Engineering departments in McMaster may apply for entry into the accelerated option by contacting the Mechanical Engineering Department's Associate Chair (Graduate). Application for entry into the Accelerated Option through the Associate Chair (Graduate) occurs in the penultimate year of undergraduate studies. Applicants must have maintained a minimum CGPA of 9.5 for their undergraduate course work with a sessional average of 9.5 at the time they are applying for the option. The Accelerated Option requires students to complete at least one term of their research project with a supervisor from the department prior to completion of their undergraduate degree. A one-term 600-level course is required under the Accelerated Option in the final undergraduate year for graduate credit provided it is listed within the department. For students enrolled in the Accelerated Option, research conducted in MECHENG 4X04 may count towards the Accelerated Option and therefore towards partial fulfillment of the graduate M.A.Sc. thesis work. Entry into the M.A.Sc. program under the Accelerated Option must occur less than one year after completing one's undergraduate degree and must meet the same requirements for admission as other candidates.



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Email: mech@mcmaster.ca
http://www.mech.mcmaster.ca

Mechanical Engineering Approval of M.A.Sc. Defence Examination Committee

Student Name		Student Number	

Title of Thesis:	
Date of Defence:	
Time:	
Location:	
Examination Committee:	
Committee Chair:	
Member:	
Supervisor:	
Co-Supervisor (if applicable):	

Return completed form to the Graduate Program Administrator

Approval of M.A.Sc. Defence Examination Committee:	
Associate Chair (Graduate Studies)	Date

DOCTOR OF PHILOSOPHY (Ph.D.)

Program Requirements

Program start date prior to September 1, 2015: Four half courses (50% of which being MECHENG) at the 700 level are the minimum required beyond the Master's degree. Only courses delivered by departments in the School of Engineering and Applied Sciences (listed here: <https://www.eng.mcmaster.ca/school-engineering-applied-sciences>) do not require a petition to count toward degree requirements; however, they cannot replace a MECHENG course.

Program start date between September 1, 2015 and September 1, 2019: The minimum course requirements for this degree are two half-courses at the 700 level beyond the master's degree, **OR** six half-courses, at least five of which should be at the 700 level, beyond the Bachelor's degree. Half of your courses are required to have "MECHENG" in the course code. Only courses delivered by departments in the School of Engineering and Applied Sciences (listed here: <http://www.eng.mcmaster.ca/departments.html>) do not require a petition to count toward course requirements; however, they cannot replace a MECHENG course.

Program Start Date of September 1, 2019 or later: The minimum course requirements for this degree are two half-courses at the 700 level beyond the master's degree, **OR** four half-courses, at the 700 level, beyond the Bachelor's degree. Half of your courses are required to have "MECHENG" in the course code. Only courses delivered by departments in the School of Engineering and Applied Sciences (listed here: <http://www.eng.mcmaster.ca/departments.html>) do not require a petition to count toward course requirements; however, they cannot replace a MECHENG course.

Incoming graduate students to the Faculty of Engineering are required to complete a [career planning report](#) **within their first year of study**. Students must first book a career planning session with the faculty's career development specialist before submitting a career planning report. The report should not exceed 2 pages and must be submitted to the department's graduate program administrator to be evaluated by the associate chair (graduate).

Ph.D. students are required to pass a comprehensive examination designed to test their breadth of knowledge and ability to integrate ideas.

Students are required to present a thesis that embodies the results of original work that the candidate has completed and demonstrates competence in Mechanical Engineering. Only the standard format thesis, as described in the document "[Completing Your Thesis - Ph.D.](#)" (available from the School of Graduate Studies website), will be accepted for examination. An oral defence of the thesis is required.

Additional Requirements:

- ME 758 "Graduate Seminars in Mechanical Engineering.": Mandatory annual registration in Mosaic for Term 1 and Term 2 of every academic session. Please visit [Avenue to Learn](#) for more details.
- SGS 101 and SGS 201 (online courses): Mandatory registration in Mosaic at the start of a student's program only. Must pass and abide by these online SGS courses. Connect to Avenue to Learn to complete these online courses at: (<http://avenue.mcmaster.ca/>).
- Job Hazard Analysis (JHA) form ([see JHA under "Quick Links"](#)): Must complete a job hazard analysis (JHA) form with your supervisor and read and follow the appropriate Standard Operating Procedures (SOPs). Note: In the context of safety, all graduate students are considered "workers".

- Core Health and Safety courses: Must successfully complete and abide by the following core health and safety courses (available online here: <http://www.workingatmcmaster.ca/eohss/training/>):
 - Health and Safety Orientation
 - Asbestos Awareness
 - Ergonomics
 - Fire Safety
 - Slips, Trips and Falls
 - WHMIS 2015
 - Violence and Harassment
 - COVID-19 Awareness Training

Supervision

Supervision of Ph.D. students is governed by the School of Graduate Studies regulations as outlined in [Section 3.1 of the Graduate Calendar](#).

As soon as possible, and no later than nine (9) months after commencing doctoral studies, a supervisory committee for the student shall be approved by the Department Chair or their delegate, on the recommendation of the supervisor and in consultation with the student.

The supervisory committee will normally consist of at least three (3) members (4 members in the case of co-supervision). One member, whose scholarly interests include the area of the student’s main interest, will normally be from outside the department if a suitable individual is available. Another member may be from outside the university with departmental approval and permission of the Dean of School of Graduate Studies.

Supervisory Committee Meetings:

The Ph.D. student’s supervisory committee shall meet with the student at least once a year before November 30th. At each meeting, the student shall prepare a 5-page to 10-page progress report to be given to the committee members at least one week in advance of the meeting. At each meeting, the student shall give a short 20 – 25 minutes presentation of their research progress, entertaining questions from committee members. Subsequent meetings shall be held to monitor progress towards the comprehensive exam as well as the completion of the thesis.

Supervisory Committee Report Deadlines

The deadline for completion of the supervisory committee report for students who have been in the program for one semester or more is November 30, 2022 or within ONE year of starting the PhD program, whichever comes **FIRST**.

Student start date of January or May 2022: **Deadline** is November 30, 2022

Student start date of September 2022: **Deadline** is November 30, 2023

Student start date of January or May 2023: **Deadline** is November 30, 2023



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Mechanical Engineering

Ph.D. Supervisory Committee Approval Form

Student Name		Student Number	

Title of Report (Tentative):	
Proposed Committee:	
Supervisor:	
Co-Supervisor (if applicable):	
Member:	
Additional Member who has scholarly interest in candidate's specialization:	

Return completed form to the Graduate Program Administrator

Approval of Ph.D. Committee:	
Associate Chair (Graduate Studies)	Date

Ph.D. Supervisory Committee Meeting Procedures

Supervisor:

- Set up date and time of Ph.D. supervisory committee meeting in consultation with student and other members of the committee.
- Check room availability and send email confirming supervisory committee meeting to student and other members of the committee, including date, time and room location.
- Inform graduate administrator by email or using the optional form.

Student

- Once date is set, talk to graduate administrator to initiate report. Students will receive this message:

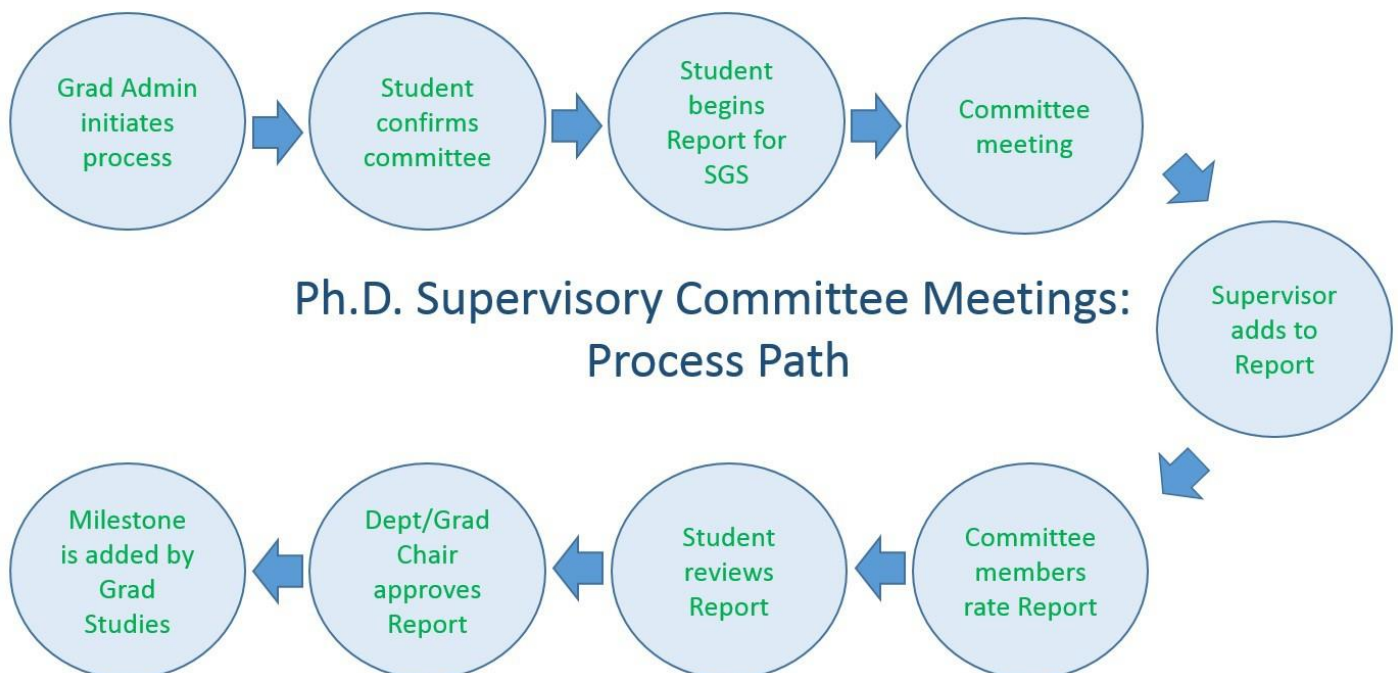
Dear Student Name,

*All PhD students must meet at least once a year with their supervisor and committee.
Our records indicate that you should have a meeting this year.*

*Please work with your supervisor, and/or graduate office to arrange a meeting date and time. Once a date has been fixed, please click on the link below to initiate the report to be submitted by you to your committee and supervisor, prior to the meeting. **[Link to student's report]***

*Student Records
School of Graduate Studies*

Follow the instructions at the link in the email to complete your Annual Supervisory Committee Report. (Images from the online report appear on the next page.)





Gilmour Hall 212, 1280 Main Street West
 McMaster University
 Hamilton, Ontario
 Canada L8S 4L8
 Telephone: 905 525-9140 x23679

Supervisory Committee Meeting Report

Student ID# _____ First Name _____ Family Name _____

Program MECHANICAL ENGINEERING

Date of this meeting (YYYY-MM-DD):

Every Ph.D. student must have a Ph.D, Supervisory Committee meeting at least once every academic year. This report must be received by the School of Graduate Studies by November 30th.***

COMPREHENSIVE REQUIREMENT

The School of Graduate Studies Calendar states that the Comprehensive Examination for full-time students will normally have taken place between 12 and 20 months from commencement of PhD studies with an upper limit of 24 months.

Date of completion	Expected date of completion
--------------------	-----------------------------

RESEARCH ETHICS APPROVALS

Does research involve human participants, their records or tissues?
 If yes, has approval been obtained from the research ethics board?

Does research involve animals or their tissues?
 If yes, has approval been obtained from the research ethics board?

FIELD TRIPS

Does research involve international travel, which poses an identifiable additional risk under the university's risk management policy?
 If yes, has student completed risk management forms and obtained approval?
 If a Request to be Full Time Off Campus form is needed are there plans for submitting it ?

Supervisor's report

Part A: Progress

Progress made in accomplishing goals set out in last report (or toward meeting degree requirements since beginning the program if this is the first report):

(i.e., courses completed, comprehensive examination preparation/writing/oral defense, thesis proposal, research, chapters written/revise, conference presentations, publications).

Part B: Goals

Specific goals for the next interval of _____ months (attach an additional page if necessary):

Anticipated date for the completion of degree requirements:

Date(YYYY-MM-DD):

Part C: Areas for improvement and additional direction

Committee's Report

Evaluation of overall progress since last report :

RATING [E] Excellent [G] Good [M] Marginal* [U] Unsatisfactory*

Print Name	Email address (McMaster if available)	Rating	Date
Supervisor _____	_____	_____	_____
2nd Member _____	_____	_____	_____
3rd Member _____	_____	_____	_____
4th Member _____	_____	_____	_____

*Where progress is deemed marginal or unsatisfactory, attach a detailed explanation of what must be accomplished over the next 6 months in order to remedy the situation.

This completed report has been seen by me.

Student Name _____ Date: _____

Dept. Approver Name _____ Date: _____

The student may append additional comments. A student who thinks that s/he is receiving unsatisfactory supervision is urged to follow the recommended grievance procedure for the Department or Program and/or to contact the Department Graduate Advisor, Department/Program Chair, or the Associate Dean of Graduate Studies.

Student ID# _____ First Name _____ Family Name _____

TO BE COMPLETED BY THE STUDENT and SUBMITTED FOR THE COMMITTEE MEETING

Details of progress made since the last report (or toward meeting degree requirements since beginning the program if this is the first report), i.e., courses completed, comprehensive examination preparation/writing/oral defense, thesis proposal, research, chapters written/revise, conference presentations, publications:

Student Name _____ Date: _____

Supervisory Committee Members: Initial below to affirm that you have read the student's report on this page.

Supervisor: _____ Committee Member: _____ Committee Member: _____ Committee Member: _____



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Mechanical Engineering Ph.D. Annual Committee Meeting Notification (optional form)

Student Name		Student Number	
Title of Report:			
Date of Supervisor Committee Meeting:			
Time:			
Location:			
Examination Committee:			
Supervisor:			
Co-Supervisor (if applicable):			
Member:			
Additional Member who has scholarly interest in candidate's specialization:			
Department Approval			
Associate Chair (Graduate Studies)		Date	

Ph.D. Comprehensive Examination

Purpose

The purpose of the comprehensive examination is to test the breadth of knowledge and maturity of approach over a range of topics that are both within and peripheral to the student's discipline. The student's level of achievement in this examination will determine possible academic background deficiencies that the candidate may have. Successful completion of the comprehensive examination is a necessary requirement for the candidate to continue in the program.

Program Start Date Prior to September 01, 2022: The student is expected to complete all requirements of the comprehensive examination **within 20 months of first registration in the Ph.D. program, with an upper limit of 24 months**. Special exceptions require the approval of the Department Chair or designate and the Graduate School. Part-time students must take the comprehensive examination by the end of the 36th month. Normally, course requirements will be completed before the Comprehensive Exam, but this is not a requirement. Likewise, preliminary research results are not required, but the student is expected to present and defend a viable research proposal including anticipated new contributions to the existing scientific literature. It is the responsibility of the supervisor to recommend and notify the graduate administrator that a candidate will take the examination **at least two months in advance**. In consultation with the supervisory committee, the supervisor nominates a comprehensive examination committee and submits the nomination for approval by the Department chair or their designate. Once the committee is approved, it is the **responsibility of the examination committee chair** to initiate and oversee all administrative arrangements of the examination, including the exact dates of the written and oral parts of the exam.

Structure of Examination Committee

The comprehensive examination committee shall consist of:

1. the committee chair;
2. the student's supervisor;
3. at least one (1) member of the supervisory committee (apart from the student's supervisor);
4. an additional member who has scholarly interest in the student's area of specialization; and
5. an external committee member (cannot be supervisor or committee chair).

Format of the Examination

The comprehensive examination will consist of **two parts**, which are outlined below.

Part A: Breadth and Depth of Knowledge

The objective of this part of the exam is to test the student's comprehension as well as breadth and depth of knowledge of their discipline area, normally at the senior undergraduate/junior graduate level. Although the written exam focuses primarily on the student's understanding of fundamental concepts in two technical areas related to their research topic, the scope of the oral part extends to examining the depth of knowledge in the student's discipline area and possible deficiencies in their academic background.

Part B: Research Proposal

The candidate shall submit a report on the research program: **up to a maximum of 40 pages in length, INCLUDING all figures, graphs, illustrations, tables and appendices (but not including the list of references)**. The report should be typed double-spaced; 12 point Times New Roman; one inch margins on all sides. **IF THE REPORT DOES NOT CONFORM WITH THESE GUIDELINES, IT MAY BE RETURNED TO THE CANDIDATE FOR REVISION AND CAN RESULT IN DELAYING THE EXAMINATION SCHEDULE.** The report must include: (i) a critical survey of the directly related literature in the field; (ii) an outline of the proposed research program including its justification, the approach to be taken, specific analytical or experimental methods, perceived or anticipated problems, preliminary results (if available); (iii) an account of expected contributions the proposed research will bring to the existing scientific literature; and (iv) a proposed timetable to

accomplish the task. A copy of the report must be made available to each member of the Examination Committee at least two weeks prior to the date of the oral examination.

At least two weeks before oral part of the exam	Copies of research proposal to be submitted to the Graduate Program Administrator (electronic or hard copy) by student for distribution to the examination committee.
Day of oral exam (one week after the written exam)	Part B of the oral exam will be approximately 1.5 hours. The candidate will be required to present their proposal in a summary fashion (20 minutes) to the committee followed by questions directly related to the proposal and the candidate’s specific area of research.

Examination Result

- The candidate’s achievement in each of the parts shall be judged as: Pass or Fail.
- **The candidate must pass both parts to successfully complete the comprehensive exam.**
- The committee chair shall communicate the result of the examination to the department chair, who shall communicate the result of the examination, in writing, to the student.
- **Should the candidate fail either or both parts, they may request a re-examination. The re-examination will follow the same format as outlined above, and must be completed within six months of the first examination.** The candidate will be allowed only one re-examination.

Ph.D. Comprehensive Examination – Procedures and Timeline

At least 7 weeks before oral part of the exam	Meeting of examination committee takes place to discuss comprehensive exam. The committee will decide two subject areas in which candidate will be examined on, and decide which two committee members will write the two questions that will be given to the student.
6 weeks before the oral part of the exam	Written notice of the two subject areas and dates of the written and oral parts of the exam must be provided to the student, as well as a notification to examination committee members indicating/confirming same. The examination notice to the student must also include the names of the examination committee members.
At least two weeks before the written part of the exam	The two committee members preparing the written questions will circulate the questions to the exam committee. The chair of the committee will seek feedback from the exam committee and reach consensus on the two questions.
At least one week before the written part of exam	The Chair of the comprehensive exam committee submits questions to the graduate administrator for preparing in standard format. Student submits research proposal to graduate administrator.
Day of written part exam	Student to pick up questions from Graduate Program Administrator and return answers within 7 hours. Copies of answers to the 2 questions will be distributed to comprehensive examination committee.
Day of oral part of exam (one week after the written exam)	In the oral part of the exam, the candidate is free to choose whether to start with Part A (the two questions) or Part B (the research proposal). To initiate the questions for Part A of the examination, the candidate should provide a brief synopsis (maximum of 5 minutes) of his/ her answers to the two written questions.

Ph.D. Comprehensive Examination – Roles and Responsibilities

Supervisor:

- Set up the examination committee and give notification of committee to Graduate Administrator for approval by department chair/graduate chair on attached form. **(7 weeks before oral exam).**
- Setup the organizational meeting of the examining committee.

Chair of the examination committee:

- During the organizational meeting, finalize date and time of written and oral examinations **(6 weeks before oral exam).**
- Check room availability and email all members of the examination committee confirming examination, including date, time and location.
- Provide information to Graduate Program Administrator, including committee members, 2 examiners that will set the written questions, dates of written and oral exams, areas of study of examination questions in the form attached **(6 weeks before the oral exam).**
- Send email reminder to committee at least two weeks before written exam requesting written questions.
- Circulate questions to committee members once received from the examiners.

- Send finalized questions to Graduate Program Administrator (**at least one week before the written exam**).
- Oral Exam – to be scheduled one week after the written exam.

Examiners setting the written questions:

- Send questions to Chair (**at least two weeks before the written exam**).
- Be available (by phone if not in person) during the written part of the exam in case the student needs some clarification on the question.

Graduate Program Administrator:

- Get approval of examination committee from department chair/graduate chair.
- Give the timeline/information letter with the subject areas to the student (**6 weeks before the oral exam**).
- **Two weeks before the oral examination**, collect from the student and handout the research proposal to the examination committee.
- Prepare the exam questions once received from the chair in the Department examination format.
- Handout exam questions to the student on the morning (9:00 AM) of the written exam; collect the answers to the written exam questions from student on the afternoon (4:00 PM) of the written exam. Circulate the student's report and answers to exam questions to the examination committee.
- Prepare the (oral) examination result form and give to the Chair (1 day before the oral exam). Once complete, the result form is submitted to the School of Graduate Studies so that the student's academic record will show the completion of this milestone.
- Provide the student with a written letter of the result of the Ph.D. Comprehensive Examination. (If the student does not pass, please refer to the process on page 13 of this document titled, "Examination Result".)



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Mechanical Engineering *Approval of Ph.D. Comprehensive Examination Committee*

Student Name		Student Number	

Ph.D. Comprehensive Examination Committee:	
Member, Chair:	
Additional Member who has scholarly interest in candidate's specialization:	
Supervisory Committee Member:	
Supervisory Committee Member:	
Supervisor:	
Co-Supervisor (if applicable):	

Return completed form to the Graduate Program Administrator

Approval of Ph.D. Comprehensive Examination Committee:	
Mechanical Engineering Associate Chair (Graduate Studies)	Date



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Mechanical Engineering Ph.D. Comprehensive Examination – Examination Committee Form

Student Name		Student Number	
Written Examination Date:		Oral Examination Date: (1 week after written exam)	
		Time:	
		Location:	
Written Questions due to Chair:		Student Report due to Mech Eng Office:	
Written Question Examiners:			
	Name	Subject Area	
1)			
2)			
Examination Committee:			
1)	Chair:		
2)	Additional Member who has scholarly interest in candidate's specialization:		
3)	Supervisory Committee Member:		
4)	Supervisory Committee Member:		
5)	Supervisor:		
6)	Co-Supervisor (if applicable):		

Return completed form to the Graduate Program Administrator

Program Start Date of September 01, 2022 or Later: The student is expected to complete all requirements of the comprehensive examination **within 20 months of first registration in the Ph.D. program, with an upper limit of 24 months**. Special exceptions require the approval of the Department Chair or designate and the Graduate School. Part-time students must complete the comprehensive examination by the end of the 36th month. Normally, course requirements will be completed before the Comprehensive Exam, but this is not a requirement. Likewise, preliminary research results are not required, but the student is expected to present and defend a viable research proposal including anticipated new contributions to the existing scientific literature.

Format of the Examination

The comprehensive examination will consist of **two parts**, which are outlined below.

Part A: Breadth and Depth of Knowledge

The objective of this part of the exam is to test the student's comprehension as well as breadth and depth of knowledge of their discipline area, normally at the senior undergraduate/junior graduate level. Although the written exam focuses primarily on the student's understanding of fundamental concepts in two technical areas related to their research topic, the scope of the oral part of the examination extends to examining the depth of knowledge in the student's discipline area and possible deficiencies in their academic background. The student is expected to complete Part A **within 8 to 14 months of first registration in the PhD program**. The examination committee for Part A will comprise of the Student's PhD Supervisory Committee, with the Supervisor acting as the Chair. The student's supervisor will be responsible for the administration of this part of the exam. The two committee members will set the two written questions in subject areas related to the student's research in consultation with the supervisor. The student should be informed of the two subject areas by the supervisor at least six weeks before the written exam. The student will have a total of seven hours to complete the written exam in an open book format. An oral exam will follow one week after the written exam and will normally be held during the student's first PhD Supervisory Committee meeting. The duration of the oral exam will be 1.5 hours. To initiate the questions for the examination, the candidate should provide a brief synopsis (10 minutes for each question) of his/ her answers to the two written questions. Once the date of Part A is established, the supervisor should complete the **PhD Comprehensive Examination (Part A) – Examination Form** and send it to the Graduate Administrator.

Part B: Research Proposal

Part B will comprise the submission and defence of the student's research proposal. The student is expected to complete this part **within 20 months of first registration in the Ph.D. program, with an upper limit of 24 months**. The candidate shall submit a report on the research program: **up to a maximum of 40 pages in length, INCLUDING all figures, graphs, illustrations, tables and appendices (but not including the list of references)**. The report should be typed double-spaced; 12-point Times New Roman; one inch margins on all sides. **IF THE REPORT DOES NOT CONFORM WITH THESE GUIDELINES, IT MAY BE RETURNED TO THE CANDIDATE FOR REVISION AND CAN RESULT IN DELAYING THE EXAMINATION SCHEDULE.** The report must include: (i) a critical survey of the directly related literature in the field; (ii) an outline of the proposed research program including its justification, the approach to be taken, specific analytical or experimental methods, perceived or anticipated problems, preliminary results (if available); (iii) an account of expected contributions the proposed research will bring to the existing scientific literature; and (iv) a proposed timetable to accomplish the task. A copy of the report must be made available to each member of the Examination Committee at least two weeks prior to the date of the oral examination. The duration of the oral examination will be 1.5 hours.

The examination committee for Part B will consist of the PhD Supervisory Committee and an additional member who has a scholarly interest in the candidate's research specialization. The additional member will serve as the Chair of the examination committee. Once the date of Part A is established, the supervisor should complete the **PhD Comprehensive Examination (Part B) – Approval Form** and send it to the Graduate Administrator.

Examination Result

- The candidate's achievement in each of the parts shall be judged as: Pass or Fail.
- **The candidate must pass both parts to successfully complete the comprehensive exam.**
- The committee chair for each part shall communicate the result of the examination to the graduate administrator using the forms attached.
- **Should the candidate fail either part, they may request a re-examination. The re-examination will follow the same format as outlined above, and must be completed within four months of the first examination.** The candidate will be allowed only one re-examination of each part.
- Once the candidate completes both parts of the examination, the graduate administrator will submit the official result to SGS so that the student's academic record will be updated, and the Associate Chair (Graduate) will inform the candidate of the result in writing.

Mechanical Engineering

Ph.D. Comprehensive Examination (Part A) – Examination Form

Student Name		Student Number	
Written Examination Date:		Oral Examination Date: (1 week after written exam)	
		Time:	
		Location:	
Written Question Examiners:			
	Name	Subject Area	
1)			
2)			
Examination Committee:			
1)	Chair and Supervisor:		
2)	Supervisory Committee Member:		
3)	Supervisory Committee Member:		
4)	Co-Supervisor (if applicable):		

Return completed form to the Graduate Program Administrator

NOTE: This form is to be used for students who started in September 2022 or after



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Mechanical Engineering Ph.D. Comprehensive Exam (Part A) – Result Form

Student Name		Student Number	
GRADE (P, F)			
Chair, Examination Committee		Date	

Return completed form to the Graduate Program Administrator

Department Approval	
Mechanical Engineering Associate Chair (Graduate Studies)	Date

NOTE: This form is to be used for students who started in September 2022 or after

Mechanical Engineering Ph.D. Comprehensive Exam (Part B) – Approval Form

Student Name		Student Number	
Research Proposal due to Grad Administrator		Date and Time of Oral Examination	
PhD Comprehensive (Part B) Examination Committee:			
1)	Chair:		
2)	Additional Member who has scholarly interest in candidate's specialization:		
3)	Supervisory Committee Member:		
4)	Supervisory Committee Member:		
5)	Supervisor:		
6)	Co-Supervisor (if applicable):		

Return completed form to the Graduate Program Administrator

Approval of Ph.D. Comprehensive Examination Committee:	
Mechanical Engineering Associate Chair (Graduate Studies)	Date

NOTE: This form is to be used for students who started in September 2022 or after



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Mechanical Engineering Ph.D. Comprehensive Exam (Part B) – Result Form

Student Name		Student Number	
GRADE (P, F)			
Chair, Examination Committee		Date	

Return completed form to the Graduate Program Administrator

Department Approval	
Mechanical Engineering Associate Chair (Graduate Studies)	Date

NOTE: This form is to be used for students who started in September 2022 or after

Ph.D. Defence and Thesis Submission

- Regulations/guidelines for thesis writing, submittal and defence can be found at https://gs.mcmaster.ca/sites/default/files/resources/guide_for_the_preparation_of_masters_and_doctoral_theses-december_2016.pdf
 - Thesis candidates are required to use plagiarism-checking software, [Ouriginal](#), before submitting. Please follow the instructions on [The School of Graduate Studies' website](#) to obtain access to this software.
- Review defence [Ph.D. Defence Flowchart](#)
- Please review the SGS Final Submission – Final Thesis Checklist ([Doctoral Degree>Submit](#))

Convocation

Detailed information regarding convocation, including deadlines and the timing of ceremonies is available on the Office of the Registrar's website: <http://registrar.mcmaster.ca/category/grad/>. Please review the checklist items.