Graduate Student Handbook

2015-2016

Department of Mining and Materials Engineering

McGill University

Fall 2015

FOREWORD

The Graduate Studies Committee of the Department of Mining and Materials Engineering has produced and regularly updates this handbook. It contains information specific to the graduate programs of study offered by the Department. It is important for all graduate students to familiarize themselves with the information in this handbook upon entering the program and abide by the regulations governing their specific program of study. They must also consult the university calendar on regulations and guidelines of the Office of Graduate and Post-Doctoral Studies (GPS) by visiting GPS's website: www.mcgill.ca/gps/policies.

All enquiries regarding the programs of graduate studies should be addressed to Ms. Barbara Hanley, Graduate Studies Coordinator whose coordinates are listed below.

The membership of the Departmental Graduate Studies Committee (GSC) for 2015-2016 is as follows:

Professor M. Brochu, Graduate Program Director and Chair of the DGSC
Professor S. Nazhat (Materials), Associate GPD and Vice-Chair of the DGSC
Professor M. Kumral (Mining), Professor R. Gauvin (Materials), Professor M. Hasan (Materials), Professor I.-H. Jung (Materials), A. O'Reilly (Materials student rep) and J. Templeton (Mining student rep).

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic or research dishonest offences under the Code of Student Conduct and Disciplinary Procedures (see www.mcgill.ca/integrity for more information).

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GENERAL INFORMATION

The general university regulations governing graduate studies at McGill can be found at: http://www.mcgill.ca/gps/students; students in particular should regularly consult and abide by the University procedures as outlined in:
http://www.mcgill.ca/study/2014-2015/sites/mcgill.ca.study.2014-2015/files/graduate_and_postdoctoral_studies_ecalendar_2014-2015_0.pdf
and
http://www.mcgill.ca/secretariat/sites/mcgill.ca.secretariat/files/**student-handbook**-2010-english.pdf

The present booklet outlines the academic regulations specific to the graduate degrees in Mining and Materials Engineering.

All announcements and related organization for both the mining and materials engineering programs are coordinated and arranged by the Graduate Studies Coordinator of the Department.

1. PROGRAMS OFFERED

The Department offers the following graduate degree programs to qualified engineers and scientists:

1. Master of Engineering (M.Eng.) - Thesis option
2. Master of Engineering (M.Eng.) - Project option
3. Doctor of Philosophy (Ph.D.)
4. Master of Science (M.Sc.)
5. Graduate Diploma

2. ADMISSION REQUIREMENTS

2.1 Language Requirements

All non-Canadian applicants seeking admission to the graduate degree programs are required to fulfill the following language requirements.

a) Non-Canadian applicants (including permanent residents) whose mother tongue is neither English nor French and/or who hold degrees from universities where the teaching is not done in either English or French are required to take a TOEFL (Test of English as a Foreign Language) and pass it with a minimum score of 550 (paper-based), or 86 overall, with no less than 20 in each of the four component scores (Internet based) or an International English Language Testing System (IELTS) and obtain a minimum overall band of 6.5. Applications will not be considered if the TOEFL or IELTS score is not available.

b) Newly admitted students whose mother tongue is neither English nor French and/or who hold degrees from universities where the teaching is not done in either English or French are strongly advised to take one or more English language courses offered specifically to graduate students. The GSC believes that mastering English is an essential attribute for a successful research career.

2.2 M.Eng. (Thesis), M.Eng. (Project) and M.Sc.

Prospective graduate students who want to pursue M.Eng. (Thesis), M.Eng. (Project) or M.Sc. degrees in the department must satisfy the following minimum requirements:

(a) Applicants should be graduates of a recognized university and hold a B.Eng., B.Sc. Applied or B.Sc. degree equivalent to the respective McGill degree. Degrees in mining/ mineral, metallurgical/materials engineering, other relevant sciences (e.g. geology, physics, chemistry, mathematics or computer science) and other engineering disciplines such as chemical, civil, mechanical or electrical engineering are eligible for admission.

(b) Applicants must show evidence of suitable academic achievement: a minimum standing equivalent to a Cumulative Grade Point Average (CGPA) of 3.0 out of a 4.0 for all years of the undergraduate program, or a GPA of 3.2 out of 4.0 for the last 2 full-time academic years. In special cases candidates with CGPA less than 3.0 but above 2.7 may be recommended for admission by the DGSC if they produce strong evidence of research or professional achievement and receive a strong and justified endorsement from a willing professor to supervise their studies. Such recommendation for admission may be conditional on the student completing successfully a prescribed full course load term as Qualifying or Special student.

2.3 Ph.D. Degree

Prospective graduate students who wish to pursue a Ph.D. degree in the department must satisfy the following minimum requirements:

(a) A minimum academic standing equivalent to a Cumulative Grade Point Average (CGPA) of 3.2 out of a 4.0 in a Master's degree program (M.Eng. or M.Sc.) in addition to a CGPA of 3.0 out of 4.0 in the undergraduate program.

(b) Applicants should hold an M.Eng. degree or equivalent from a recognized university. Most applicants holding M.Eng. (thesis) degrees will be accepted into Ph.D. 2.

(c) Applicants holding a non-thesis M.Eng. or M.Sc. degree or equivalent whose academic/research background in mining/mineral/metallurgical/materials/process engineering is perceived to be insufficient in any way may be admitted into Ph.D. 2 with conditions set by the DGSC .

(d) (Fast Track Ph.D. 2 entrance): M.Eng./M.Sc. students, who perform at a level commensurate to Ph.D. level, may apply in writing to the Graduate Studies Committee for promotion from the Master's to the Ph.D. program without submission of a thesis. For the application to be considered, the following criteria are required:

- Not more than 12 months of study in the Master's program have elapsed.
- Minimum CGPA of 3.3 for the last two full-time undergraduate years.
- At least three graduate courses of which two are lecture-type courses have been taken with a minimum CGPA of 3.6.
- At least one seminar presentation has been given (course MIME 673 for Mining, or MIME 670 for Materials) rated at A- (80%) minimum grade.
- Strong recommendation letter from the thesis supervisor that describes the student's research achievements and potential.

If the application is approved, the Graduate Studies Committee will inform the candidate to prepare for the Preliminary Oral Examination to be scheduled sometime before the first semester of Ph.D. 2 program. If the candidate fails the Preliminary Oral Examination, he/she will be permitted to complete the Master's degree and can apply for regular Ph.D. program.

(e) (Direct Ph.D. 1 entrance): B.Eng./B.Sc. students applying to the direct Ph.D. Program (Ph.D. 1) must have a minimum CGPA of 3.7 with the evidence of research experience during their undergraduate degree.

3 MASTER'S DEGREE REQUIREMENTS

3.1 M.Eng. (Thesis Option) and M.Sc.:

The majority of students follow the M.Eng. program. The M.Sc. degree is offered to those who have a B.Sc. rather than a B.A.Sc. or B.Eng. The students holding B.Sc. can apply for M.Eng. program but students holding B.A,Sc. Or B.Eng. cannot apply for M.Sc. program. The two degrees otherwise are equivalent and have the same requirements. The basic requirements consist of:

- ✓ Required coursework, including lecture-based courses, thesis research credits and a seminar course. More detail on each of these items is provided below.
- ✓ Completion of a thesis.

A Master's degree thesis should show familiarity with previous work; demonstrate the ability to carry out, organize and present research in a professional manner; original research is not necessary. The thesis can be structured as monograph (traditional form) of typically around 80-100 pages or as journal manuscript-based (1-2 articles). For more details refer to http://www.mcgill.ca/gps/thesis

Required Coursework

a) The normal course load for students admitted to the M.Eng. program is four (4) one-term graduate courses (500 level or higher) or equivalent. Among the four courses, at least two courses offered in the present department should be taken (Special cases should be discussed with Graduate Program Director (GPD) and approved by GPD). Courses are selected in consultation with the supervisor. No undergraduate course can be substituted for a graduate-level course nor continuing education courses are eligible for credit. Students may be required to take courses beyond the normal course requirements if this is deemed necessary for the advancement of the candidate's research training and preparation. Students should discuss these extra course requirements with their supervisor upon admission into the program. The maximum number of courses (not counting courses taken during a qualifying term (item (b)) is limited to six (6) one-term graduate

courses, unless the formal request from both supervisor and graduate student is approved by GPD.

b) Students admitted into the M.Eng./M.Sc. program and whose academic background is not in mining/mineral/metallurgical/materials/process engineering may be required to take 2 one-term undergraduate courses in addition to the 4 graduate courses (item (a)). These courses are chosen in consultation with the thesis supervisor. In certain cases, a qualifying term or year may be required.

c) Thesis Research Courses:

All M.Eng. (Thesis) or M.Sc. students must register for 27 credits of thesis research courses, and a 6-credit seminar course in addition to the courses stipulated in 3.1.a). <u>These courses should be registered by the student in each semester. It is not done automatically.</u> MIME 690-695 are thesis research courses.

d) Summary of recommended course registration:

Semester (I)	**Semester (II)**	**Semester (III)**
2 graduate courses	2 graduate courses	MIME 694
MIME 690	MIME 692	MIME 695
MIME 691	MIME 693	MIME 673 (Mining) or MIME 670 (Materials)
Total Credits = 15	Total credits = 15	Total credits = 15

e) <u>Seminar Courses</u>

<u>M.Eng. Seminar Course (Mining):</u>

All Mining M.Eng./M.Sc. students are required to register in course MIME 673 and give a seminar presentation during the second semester and a second seminar presentation during the third semester. Seminar presentations are scheduled and announced by the Course Coordinating Professor (Professor Kumral for 2014-2015) at the beginning of each term. Changes to the seminar schedule will be made only if the student requesting the change can provide well justified/commanding reasons at the beginning of the term. Students are required to provide a summary of their seminar at least one week prior to the seminar. Students are expected to register in this course during their third semester. A course outline is provided by the Course Coordinating Professor with more details on the learning objectives, expectations and marking system.

<u>M.Eng. Seminar Course (Materials):</u>

All Materials M.Eng./M.Sc. students are required to register in course MIME 670 and give a poster presentation on their proposed thesis research topic at the end of the first semester of entry into the program. This is to be followed by a seminar on their thesis

work, during their third semester. Seminar presentations are scheduled and announced by the Course Coordinating Professors (Professors Gauvin and Bevan for 2014-2015) at the beginning of each term. Changes to the seminar schedule will be made only if the student requesting the change can provide well justified/commanding reasons at the beginning of the term. Students are required to provide an abstract of their seminar at the latest by Wednesday prior to their Friday presentation. Students are expected to register in this course during their third semester. A course outline is provided by the Course Coordinating Professors with more details on the learning objectives, expectations and marking system.

Thesis Requirement

a) Thesis Supervision

Upon admission, each student will have a designated thesis supervisor from the academic staff of the department. It is important that students consult with their supervisor on a regular basis. As soon as possible after starting the program but not later the end of the first term, students should develop a research topic and research plan that is assigned or approved by their supervisor. Students are expected to inform themselves of program requirements and deadlines; to work within these deadlines; to communicate regularly with their supervisor and to submit progress reports as required.

If the student/supervisor relationship is in failure, student may request the change of supervisor. Appendix B provides procedures for supervisor/student conflicts and change of supervisor requests.

b) Thesis Submission

The student is consulted by his/her thesis supervisor on the selection of the external examiner of his/her thesis. The supervisor ensures approval by the Department (Graduate Program Director) of the selected examiner and his/her consent to act as an examiner. The student and the supervisor should then complete and sign the "Thesis Submission Form" before being submitted to the Graduate Program Director for signing and forwarding to GPS. This form is to be submitted at the same time as the thesis. There is no oral defense for an M.Eng./M.Sc. thesis.

c) Time Limitation

University regulations stipulate that the time limit to complete a Master's degree is 3 years at full-time status and 5 years at part-time status. M.Eng./M.Sc. students in the beginning of their third year will be asked to specify when and how they expect to complete their programs within the remaining time period. No extension is given after the specified term and students must withdraw from the program. But re-admission for students may be allowed upon the proof of the completion of their thesis.

3.2 M.Eng. (Project) including the M.Eng. Environmental Engineering Option

Course Registration

The M.Eng. (Project) program consists of 45 credits of course work, seminars and projects. The package of courses undertaken is intended to provide basic training and will be selected in consultation with the candidate to satisfy his/her desired specialization. Industrial experience is favourably viewed for entrance into the program, but is not considered a necessity. The program consists of a minimum of 12 credits of departmental graduate level courses, 6 to 15 credits of M.Eng. Materials/Mining project courses, the Materials/Mining Engineering Seminar (MIME 670 or MIME 673) and enough additional courses (500 level or higher) chosen from within or outside the Department to complete the 45-credit requirement. The project courses may be undertaken in an industrial environment as a 4 to 8 month work term. The program is established in consultation with the student's advisor. The external courses and project courses undertaken in an industrial environment are subject to departmental approval. It is clarified that ContEd courses are not eligible graduate courses.

Courses for M.Eng. Environmental Engineering Option

This program is offered by the Faculty of Engineering through the Department of Civil Engineering (http://www.mcgill.ca/civil/grad#ENVIRONMENT). Students registered in our Department can take this program by completing the following requirements:
Required course work (12 credits in total):

CIVE 615 (3 cr) and CHEE 591 (3 cr)
or CIVE 555 (3 cr) and AEMA 611 (3 cr)
or OCCH 612 (3 cr) and FDSC 505 (3 cr)

Seminar (6 credits in total):

MIME 670 (6 cr) or MIME 673 (6 cr)

Electives (12-21 credits in total) including:

Six credits from List B and six credits from List C; each course should be from a different department. These course lists can be viewed at: http://www.mcgill.ca/civil/grad#ENVIRONMENT

Project (6-15 credits) from the following list

MIME 628 (6 cr)	MIME 680 (6 cr)
MIME 624 (6 cr)	MIME 681 (6 cr)
MIME 634 (3 cr)	MIME 682 (3 cr)

3.3 Residence requirement

The minimum residence requirement for McGill's Master's thesis programs is 3 full-time terms. Non-thesis option residence requirements are fulfilled when students complete all course requirements for the program and pay the fees accordingly.

Students may find more information on residency requirements here:
http://www.mcgill.ca/study/2014-2015/faculties/engineering/graduate/gps_program_reqs

4 Ph.D. DEGREE REQUIREMENTS

The Ph.D. program requirements consist of:

- ✓ Required coursework, including lecture-based courses, thesis research proposal, and a seminar course.
- ✓ Completion of a thesis

A Ph.D. thesis should show familiarity with previous work; demonstrate the ability to carry out, organize and present research / scholarship in a professional manner; display original research / scholarship; and make an original contribution to knowledge. The thesis can be structured as monograph (traditional form) of typically up to 200 pages or as journal manuscript-based (3-5 articles). For more details refer to the Thesis Office guidelines:

http://www.mcgill.ca/gps/thesis

Required Coursework

a) The compulsory course registration is as follows.

All Students:	MIME 701 Thesis Research Proposal
Materials:	MIME 771 Ph.D. Seminar
Mining:	MIME 776 Mining Research Seminar

In addition to the compulsory course registration, the minimum course load for students admitted to Ph.D. 2 is two one-semester graduate courses (500 level or higher). Among two courses, at least one course offered in the present department should be taken (Special case should be discussed with GPD and approved by GPD). Courses are selected in consultation with the supervisor. A student is normally required to take at least one true lecture-type graduate course out of the two required courses. Students may have to take courses beyond the normal course requirements if this is deemed necessary for the advancement of the student's research training. The maximum number of courses is limited to four (4) one-term graduate courses, unless the formal request from both supervisor and graduate student is approved by GPD.

Students admitted to direct Ph.D program (Ph.D. 1) from their Bachelor program or Fast Track Ph.D program (Ph.D. 2) directly from their Master's program are required to take four one-semester graduate courses (500 level or higher) of which at least three are lecture-type courses. For Fast Track Ph.D program students, the courses taken during their Master program prior to Fast Track admission are counted as part of course requirement. Courses are selected in consultation with the thesis supervisor. Students may be required to take courses beyond the normal four course requirement if this is deemed necessary for the advancement of the student's research training. At least two graduate level courses should be taken from the present department, unless special case. However, the maximum number of course is six (6) courses, unless the formal request from both supervisor and graduate student is approved by GPD.

b) Ph.D. Preliminary Oral Examination

(MIME 701 Thesis Research Proposal): Within a year (refer to explanatory note* at the end of the section) of registering, a Ph.D. student is required to present his/her research program to an examination committee, and describe the results obtained to date together with plans to complete the research. He/she should be prepared to talk knowledgeably about the research subject area. Prior to this examination, the student must have passed at least one graduate course. For the examination, the student should prepare a report (refer to Appendix A for preparation guidelines) of no more than 25 pages including diagrams etc. (1-inch margins, 1 ½-spaced, 12-point font size). The report should be approved by the thesis supervisor and then distributed to the members of the examination committee at least one week prior to the oral examination. The examination consists of a 20-25 minute presentation followed by questions from the members of the committee on the proposed thesis topic as well as general background in the area of the student's research. The presentation is open to all Departmental staff and graduate students. The oral examination following the open presentation and question period is a closed-door session.

In consultation with the student's supervisor, the Graduate Program Director or delegate will convene an examining committee of normally four members. The committee will include the supervisor, two examiners (professors from other Departments can be invited) familiar with the research subject, and a fourth member-examiner to act as the Chair of the examining committee. In the absence of a fourth member one of the other two examiners acts as Chair. Committee for the students entered through Direct Ph.D program and Fast Track Ph.D program is composed of five (5) examiner including supervisor and chair of the examining committee. Before the examination starts, the Committee goes *in camera* session and reviews the student's file. After the examination, the committee goes into a closed-door discussion and a decision is made. There are three possible outcomes of this examination. The committee will render one of the following decisions by majority vote: (a) The candidate passed the examination; (b) the candidate did not pass the examination, but is given the opportunity of being re-examined within a six-month period; (c) the candidate failed and is asked to withdraw from the program. In

the event of a double failure, and upon recommendation of the examination committee, the Graduate Studies Committee might allow the student to change his/her registration status to M.Eng. if appropriate. The Chair of the examination committee will verbally inform the student of the outcome of the examination. A formal written report summarizing the committee's ruling and comments/recommendations will be prepared by its Chair and forwarded to the candidate and the Graduate Program Coordinator to be placed in the student's file along the Ph.D Oral Exam Document.

All announcements and related organization for both the Mining and Materials engineering programs are coordinated by the Graduate Studies Coordinator of the Department.

* (Normal Ph.D 2 entrance student): Preliminary exams are typically scheduled in two exam periods one in late May and the other in early November depending on the level and term of first registration. Thus those who started their studies at the Ph.D 2 level in either May or September are normally required to take the exam during the May exam period of the following year. On the other hand those who started their studies in January are required to take the exam during the November exam period of the same year.

* (Fast Track Ph.D program entrance student (Ph.D 2): If the application is approved, the Graduate Studies Committee will inform the candidate to prepare for the Preliminary Oral Examination sometime before the first semester of Ph.D 2 program. Five (5) examination members are required including the committee Chair and supervisor. Typically GPD or Associate GPD can be the Chair of this committee.

* (Direct Ph.D program entrance student (Ph.D.1)): In the case of students who were admitted at the Ph.D 1 level or who are required to take a minimum of four courses take the Preliminary Ph.D Oral Exam during the second exam period. Thus those who started in September take their exam in November of the following year while those who started in January take their exam in May of the following year. Refer to Appendix A for the 2014-2015 schedule. Five (5) examination members are required including the committee Chair and supervisor. Typically GPD or Associate GPD can be the Chair of this committee.

c) <u>Ph.D. Seminar</u>:

All Ph.D. students are required to give a seminar and complete their respective seminar course MIME 771 for Materials and MIME 776 for Mining about a year after they have taken their Preliminary Oral Examination. The seminar is typically scheduled during their 4^{th} semester since entering into the program, or one year after their Preliminary Oral Examination.

For the graduate students in mining engineering, MIME 776 includes the "comprehensive examination" taking place prior to and as a requirement for Ph.D thesis submission.

d) Comprehensive thesis examination - Mining Engineering:

This examination is taken one to two years after the Ph.D. Preliminary Oral Examination, and must be satisfactorily completed prior to thesis submission and defense.

In consultation with the student, the thesis supervisor nominates three possible examiners of the thesis to the Graduate Program Director or Delegate (Professor M. Kumral who also coordinates the graduate seminar course: MIME776). At least one of the examiners is external to the Department.

The committee members must be provided with thesis copies at least four (4) weeks prior to the oral examination. The examiners prepare written comments and submit to the Chair of the examination committee. These written reviews are appended to the examination forms and are made available to the student, after the deliberation of the committee. The thesis reviews become part of the student's file.

A thesis can only be considered for submission, if all modifications requested at the comprehensive exam stage are completed satisfactorily. The student is required to provide a written response to each examiner's comments one by one as implemented and how, where appropriate; if not implemented justifications/explanations are required. This written response if approved by the supervisor is placed in the student's file and the student is authorized to proceed with the submission of his/her thesis.

Thesis Requirement

a) Thesis Supervision

Upon admission, each student will have a designated thesis supervisor from the academic staff of the department. It is important that students consult with their supervisor on a regular basis. As soon as possible after starting the program but not later the end of the first term, students should develop a research topic and research plan that is assigned or approved by their supervisor. Students are expected to inform themselves of program requirements and deadlines; to work within these deadlines; to communicate regularly with their supervisor and to submit progress reports as required.

If the student/supervisor relationship is in failure, student may request the change of supervisor. Appendix B provides procedures for supervisor/student conflicts and change of supervisor requests.

b) Thesis Submission and Oral Defense

In consultation with the student, the thesis supervisor nominates one internal and one external examiner of the thesis and requests/secures the approval of the Department (Graduate Program Director). The supervisor and the student should then complete and sign the "Thesis Submission Form" before being signed by the Graduate Program Director. The student is required to have the approval of his/her thesis supervisor to

submit his/her thesis. Upon receipt of satisfactory reports from the external and internal examiners, the date of the final oral defense is scheduled and conducted as per GPS's regulations/guidelines. The composition of the Ph.D Oral Defence Committee is proposed by the supervisor and approved by the Graduate Program Director. Students are reminded to consult with the Graduate Studies Coordinator regarding the recommended dates for submissions of thesis forms.

c) Time Limitation

The maximum allowable length of studies is up to and including Ph.D. 7. Students in their Ph.D. 6 level will be asked to specify when and how they expect to complete their programs within the remaining time period. No extension is given after the specified term and students must withdraw from the program. But re-admission for students may be allowed upon the proof of the completion of their thesis.

d) Residence requirements for doctoral programs

Doctoral programs require a minimum of two years full-time residence (4 full-time terms) unless the student is admitted to Ph.D 1 (6 full-time terms).

In the doctoral program, students must be registered on a full-time basis for one more year after completion of the residency (i.e., Ph.D 4 year) before continuing as additional session students. It is expected that at this stage, all the course work and Comprehensive Examinations will have been completed and the student will be engaged in thesis preparation. Students are encouraged to begin their research as early as possible.

More information on residency requirements can be found here:
http://www.mcgill.ca/study/2014-2015/faculties/engineering/graduate/gps_program_reqs

5. GRADUATE DIPLOMA REQUIREMENTS

The Graduate Diploma is a one-year, course-based, 30-credit degree in Mining Engineering. It is open to professionals from industry, engineers and scientists, who wish to receive professional development education in mining engineering in a formal manner. The program includes a seminar course (6 credits), a minimum of six graduate level courses (18 credits), and a project (6 credits). One to three courses may be taken at the senior undergraduate level with the approval of the Director of Mining (or the Grad Committee Mining Academic Member-Professor Kumral for this year) and GPS.

6. TRACKING OF RESEARCH PROGRESS

This is mandatory McGill policy (http://www.mcgill.ca/gps/students/research-tracking). The template of the departmental annual progress report can be found in our departmental

website, which is mandatory for graduate student to submit in October. Those students not submitting a report will be excluded from consideration for department scholarships.

a. Annually, each student must fill out the applicable sections of the form, seek his/her supervisor's approval and submit in person or by email the form to the departmental representative appointed by the Department Graduate Studies Committee or if no such person is appointed to the Graduate Program Director or Graduate Program Coordinator. Professor Kirk Bevan is the departmental representative supervising the progress tracking process in 2014-15. It is clarified that students must submit their forms by the deadline set by the Department (October 31st each year) independent if already signed/approved by their supervisors. Students should state if the absence of a signature by the supervisor signals his/her disapproval or simply reflects delays due extended travel or other similar reasons. Supervisors can communicate their comments after the deadline.

b. If the report-form is signed by both the student and the supervisor the form is placed in the student's file and no further action is required. However in case of a disagreement between supervisor and student, a meeting is called by the departmental representative (Prof. Kirk Bevan) or the Graduate Program Director to arrive at a mutually agreed set of objectives. In case this fails then the student must write a statement detailing his/her objections to the expectations/objectives set by the supervisor and submit this information to the Graduate Program Director along with the form.

c. All new M.Eng/M.Sc thesis and Ph.D students within two months after they first register in their program fill out section 1 (Objectives) in consultation with their supervisor and submit the form. All other in-progress students submit their progress reports once a year typically during the month of October. This time in addition to section 1-Objectives for the new year, they fill out all other sections too as necessary reporting on the progress and achievements of the past year. The student and supervisor both sign the form before being submitted to the departmental representative. In case of disagreement or simply because of the absence of supervisor the student still needs to submit his/her form on time clarifying on the form by ticking the appropriate box the case applicable to her/him. In case of disagreement the procedure described in above point 2 is followed.

d. In the event that the research progress is unsatisfactory, a new set of <u>interim</u> objectives should be developed for the student at a special meeting called by the Progress Tracking Supervising Professor (Prof. Kirk Bevan) or the GPD and recorded on a new form. These new, or interim, objectives apply only to the next semester. Evaluation of progress should take place after that semester has concluded, following the steps described in point 3, above.
e. In the event that a student has **any two** unsatisfactory evaluations they may be required to withdraw from their program of study. These two unsatisfactory evaluations need not be successive.

f. Timely submission of the report as outlined above and the achievements reported therein are taken into account in handing out research scholarships by the department.

7. STUDENT FUNDING

The department makes every effort to ensure that each graduate student has partial or full funding throughout his or her graduate studies. Financial assistance is available through stipends from your supervisors' research grants or contracts, internal and external fellowships from provincial and federal governments, industrial research fellowships, differential fee waivers, teaching assistantships, departmental awards, etc. Usually the type and level of funding offered to you is specified in the letter of admission.

Research Stipends/Scholarships

The majority of our graduate students are funded through research stipends/scholarships. The amount of a stipend varies greatly according to offers the students receive upon their admission. Refer to the explanatory note* below for the typical terms covering the financial support package students receive. Students are paid to work on their own thesis research which is part of their supervisor's program of research. The student must work on the specific project for which the funding is available. Upon satisfactory progress in terms of research, a research stipend may be renewed on a yearly or half-yearly basis. Since funding is awarded to the research supervisor, the graduate student may be expected to write bimonthly or quarterly reports to satisfy the granting organization or agency. Some research contracts held by supervisors may have other obligations and the graduate student who undertakes such a project is expected to respect the conditions stipulated in the contract awarded to the research supervisor and stipulated in the letter of admission. Typically a fully funded M.Eng/M.Sc (Thesis) student receives $16,500 per year while Ph.D. students receive $19,000 per year as per normal NSERC rates. Note that these rates are tax-free. Students in general are responsible to pay their own tuition fees. Annual fees are posted on the following website: www.mcgill.ca/student-accounts/fees.

* In the case you secure additional funding in the form of internal or external scholarships or in the form of teaching or research (related to other than your thesis work) assistantships the level of support received from your supervisor may be adjusted downward if you exceed certain limits. These limits depend on program and level of tuition fees. As guideline the DGSC has set these limits: $19,000 for M.Eng/Quebec students; $22,000 for M.Eng 1/Out-of Province Canadian students (reduced down to $20,000/year in M.Eng 2); $30,000 for M.Eng 1/International students (reduced down to $25,000/year in M.Eng 2); and $24,000/32,000 for domestic/international Ph.D students respectively. In the case of additional income in the form of teaching or research assistantships you are required to have your supervisor's authorization if your stipend support from him/her exceeds $16,500 for all Master' students and $19,000 for all PhD students. If you fail to secure your supervisor's authorization the latter may reduce your stipend accordingly. Please discuss the details surrounding the financial support you will be receiving directly with your supervisor.

External Fellowships

External fellowships are awarded on a competitive basis to prospective graduate students or graduate students in residence who are Canadian citizens or permanent residents of Quebec. These fellowships are awarded by the provincial government in the form of postgraduate scholarships administered by FRQNT and by the federal government in the form of NSERC postgraduate scholarships.

NSERC/FRQNT industrial innovation scholarships (IIS) are awards that are based on a specific research proposal involving a departmental professor, a collaborating company and a graduate student. In addition to the basic requirements like those of the regular NSERC postgraduate scholarships, IIS require students spend part of their time at the company's facilities. All applicants require departmental endorsement and a signed commitment from the sponsoring company.

In the case of doctoral students receiving NSERC or FRQNT post-graduate scholarships the Faculty of Engineering provides them automatically with a Leveraged MEDA Award (McGill Engineering Doctoral Award) amounting to $12,000 as top-up to their external award. No application for this type of award is required.

Internal Fellowships

Direct MEDA Awards: All doctoral student applicants who apply by January 15 for admission in the May or September term are automatically considered by the Graduate Studies Committee for one of the McGill Engineering Doctoral Awards that amounts to $24,000/year over a period of 3 years. Applicants are ranked and selected according to their academic (Bachelor's and Master's level) record as well their research accomplishments and potential as evidenced by international standard publications. Selected applicants/new students are nominated to the Faculty of Engineering which, ultimately decides and informs the successful candidates. The MEDA recipients are required to provide a progress report at the end of each year before their award is renewed. Students whose research progress is evaluated as non-satisfactory may have their award cancelled.

Fast-track Awards: The Faculty of Engineering may offer a limited number of scholarships to incoming Master's students who are identified for fast-track promotion to Ph.D (see previous relevant section). These awards amount to $15,000 in year one followed by a MEDA scholarship of $24,000/yr over the subsequent 3 years.

GEF Fellowships: Each year, the department receives several GEFs (Graduate Excellence Fellowship) - the value of this fellowship typically is $2,500 for a Master's student and $5,000 for a doctoral student (these levels may be adjusted by the DGSC as it sees appropriate) and is not-renewable. The recipients are chosen (on the basis of academic record) by the departmental Graduate Studies Committee among all students with preference placed to new students as part of the Department's recruitment incentive program. As part of this program Master's students who receive external NSERC or

FRQNT scholarships automatically qualify for $5,000 top-up awards in the form of a GEF. No applications are required for the above Fellowships.

Differential Fee Assistance: International doctoral students who have secured a MEDA or a minimum $19,000/yr stipend from their supervisors receive the McGill Engineering International Tuition Assistance award (MEITA) of $8,000/yr for a period of 3 years. There are no similar awards for Master's international students. The University offers a limited number of Differential Fee Waivers (DFW) applicable only to graduate students registered in Summer. The DFWs pay the difference between Quebec student and international student fees and typically are given by the DGSC to int'l Master's students. No applications are required as all eligible students are automatically considered.

Departmental Fellowships and Awards: The department offers a limited number of awards on a competitive basis to graduate students enrolled in the department. The values of these awards may range from $2,000 to $6,000 per year. Scholarship recipients are selected on the basis of their academic performance and research record as evidenced in their progress tracking forms. The top three performers are recognized with the presentation of gold, silver and bronze medals at a reception during the Winter term.

Teaching Assistantships (TA): Each semester, the department announces and posts teaching assistant positions for various courses. Interested graduate students may apply via this link on our web site - Student Positions | Materials Engineering - McGill University. Teaching Assistants are assigned and paid as set out in the Collective Agreement between McGill University and A.G.S.E.M. (Association of Graduate Students Employed at McGill). Teaching assistants are expected in general to correct course assignments, run tutorials and/or demonstrate laboratory experiments and correct laboratory reports. Teaching Assistantships are considered additional work for additional income. The Teaching Assistant and his/her supervisor should agree on a schedule arrangement in order not to delay research activities. In the case of fully funded graduate students by their supervisor the latter may prevent them from taking a TA position.

8. LABORATORY SAFETY

Everybody should follow proper safety procedures while working in a lab. The Department has in place a compulsory safety policy overseen by a Safety Committee chaired by Professor M. Cerruti. At least once a year the Safety Committee conducts walk-in inspections to all laboratories. Each lab has a safety officer-usually one of our technicians. The research supervisors and safety officers for each laboratory ensure that graduate students, post-doctoral fellows and other research personnel are cognizant of the risks associated with their project and follow safe laboratory procedures. Every new graduate student is strongly advised to take the on-line safety training offered by the Environmental and Health Safety Office of the University at http://www.mcgill.ca/ehs/training. Training on Workplace Hazardous Materials Information System (WHMIS) is mandatory for all experimental/non-experimental laboratory personnel (go to http://www.mcgill.ca/ehs/training/whmis/ for more info). Departmental safety orientation and Laboratory safety orientation checklist are

compulsory for all graduate students. Such safety trainings and records are considered as part of the progress of graduate program and such information is collected through progress report. Additional info becomes available through announcements from our Safety Committee or can be found at http://www.mcgill.ca/ehs/laboratory and http://www.mcgill.ca/materials/safety.

APPENDIX A

1. Guidelines for the preparation of the Ph.D. Preliminary Oral Examination document

An important part of the Preliminary Ph.D. Examination is the supporting document that must be approved by the student's supervisor and distributed to each member of the committee not later than two weeks before the exam date. This document is not a thesis, nor a publication. It is a well-documented research proposal, which presents theoretical, modeling and/or experimental aspects of the work in a well-balanced, interconnected and clear manner. The goal is to demonstrate the student's ability to review critically previous scientific work coupled with an ability to design experiments in a methodical and well-thought-out way. Research findings, when available, must also be interpreted and analyzed by making reference to appropriate themes. Last, but not least (and this is particularly important during the actual oral examination), the student should demonstrate "originality" and a command of topics and concepts relevant to the thesis, as well as their broader area of research.

The document should contain:

- Abstract.
- Table of Contents (with pagination).
- Introduction giving the background, justification and objectives of the research project.
- Literature Survey, which should be substantial, critical and interconnected. Previous Ph.D. theses should be consulted to provide examples of how literature surveys are prepared (if available). The review should lead to stated (a) thesis goal, and (b) specific objectives that if met will allow reaching the goal.
- Outline of the research methodology.
- Summary of Results in progress with suitable discussion, if the project is well in progress. This is recommended part but it is not necessity.
- Clear statement of the intended contribution to original knowledge.
- Schedule of the research program including milestones (aligned with the objectives mentioned above) and timelines.
- Conclusion.
- Complete bibliography.

The document, not including the title page, abstract, table of contents, and bibliography should be approximately 25 pages long, including illustrations, with 12-font size1 ½ spaced text. Documents not respecting these guidelines will be returned to the candidate and the exam rescheduled if necessary.

2. Evaluation of Preliminary Ph.D. Oral Exam

The Preliminary Ph.D. oral exam will be evaluated based on:

- Quality of document
- Oral presentation
- Background knowledge on the subjects relevant to the Ph.D. topics

3. 2014-15 Schedule of Preliminary Ph.D. Oral Exams

	Students Status is			
Student Entered Program in	PhD1	PhD2	PhD2 with four lecture courses*	Entry to the left indicates when the student will take their preliminary exam
May 2014	November 2015	May 2015	November 2015	
September 2014	November 2015	May 2015	November 2015	
January 2015	May 2016	November 2015	May 2016	

*supervisor must indicate in writing to the Graduate Program Director that the student is required to complete additional course work and thus will delay their exam by one exam period.

APPENDIX B

Departmental Disagreement Resolution Procedure and Change of Supervisor Requests

These procedures are intended to aid in the resolution of conflicts between graduate students and their supervisors (or supervisory committees) as outlined in 8.13 (v) of the Graduate Student Calendar. It is important to remember that students should always attempt to resolve such conflicts within their department before seeking outside assistance, and the confidentiality of the issues raised at each step will be ensured to the greatest possible extent.

If you find yourself in a conflict with your supervisor or supervisory committee, you should follow these steps, in this order:

1. Informal discussions with your supervisor. Discuss the matter tactfully with the supervisor - he/she is often unaware of the problem and will usually be happy to help find a satisfactory solution.
2. Discuss with the Graduate Program Director - refer to section below.
3. Discuss with the Department Chair. The chair should attempt to resolve the conflict, either by providing mediation or making alternative arrangements for the continued supervision of the student if the student is otherwise performing satisfactorily in the program.

If your supervisor is also graduate program director or department chair and you cannot resolve the problem with him/her, then you should skip the corresponding step.

4. Informal meeting with the Associate Dean (Graduate and Postdoctoral Studies) or the Ombudsperson. Under these circumstances, an informal meeting outside the department is often all that is required for both sides to reach an agreement. If further steps are warranted, the Associate Dean or Ombudsperson will then advise you to that effect.

Change of Supervisor Requests

In exceptional circumstances, the student may request in writing from the Graduate Program Director a change of thesis supervisor if valid reasons are given. The approval of the Graduate Studies Committee, upon recommendation from the Graduate Program Director is required in order to make such a change. This implies that a new supervisor is willing to accept the student otherwise the student may be asked to withdraw from the program. In case of potential conflict with one or more members of the GSC the matter may be referred to the Department Chair for final decision. Note that in case of students funded through a grant of his/her supervisor may be required that the related deliverables are provided before a change of supervisor is finally approved.