



McGill

Graduate Student Handbook

2010-2011

Department of Mining and Materials Engineering

McGill University

Fall 2010

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 2010-2011 is as follows:

Professor G.P. Demopoulos, Graduate Program Director and Chair of the DGSC
Professor R. Chromik (Materials), Professor H. Mitri (Mining), Professor I-H. Jung (Materials),
Professor N. Quitariano (Materials), David Heard (Materials student rep) and Ryan Goodfellow
(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 are described in the Graduate and Postdoctoral Studies (GPS) Calendar and in the booklet *General Information, Regulations and Research Guidelines (The Red Book)* published annually by GPS. 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 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), 213 (computer-based) or 86 overall, 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. Permanent Residents whose University education was in a non-English or French language environment may also be required to submit a TOEFL score.
- 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 may be asked to take one or more English language courses offered specifically to graduate students. The GSC believes that mastering English is 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 CGPA 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 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 will be admitted into Ph.D. 1.
- (d) M.Eng. (thesis) or M.Sc. students may be admitted directly to Ph.D. 2 after having successfully passed the direct transfer promotion examination. The regulations governing such a transfer are described in a later section.
- (e) In certain cases highly qualified B.Eng or B.Sc. graduates that exhibit strong research potential may be recommended for direct admission to Ph.D. 1.

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 (mostly in Mining Engineering) to those who have a B.Sc. rather than a B.A.Sc. or B.Eng. 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/current/programs/thesis/guidelines/preparation/>

Required Coursework

- a) The normal course load for students admitted to the M.Eng/M.Sc. program is four (4) one-term graduate courses (500 level or higher) or equivalent. A list of courses offered this year is provided in Appendix C. Courses from this list or from those offered in other departments are selected in consultation with the supervisor. No undergraduate course can be substituted for a graduate-level course. 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. It is clarified that ContEd courses are not eligible graduate courses.
- 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).
- 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) Seminar Courses

M.Eng. Seminar Course (Mining):

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 Mitri for 2010-2011) 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.

M.Eng. Seminar Course (Materials):

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 Quitoriano and Cerruti for 2010-2011) 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 Tuesday 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 you consult with your supervisor on a regular basis. As soon as possible after starting the program, you should develop a research topic and research plan that is assigned or approved by your supervisor. Students are expected

to inform themselves of program requirements and deadlines; to work within these deadlines; to communicate regularly with the supervisor and to submit progress reports as required.

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 three names nominated as external examiners of his/her thesis. The student and the supervisor should then complete and sign the “thesis Submission Form” before being submitted to the Graduate Program Director for approval. 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. Extensions may be granted under mitigating circumstances. Prior health reasons cannot normally be used as an argument for the extension of someone’s studies unless proper documentation is provided in due time when the health problem arises

The student and supervisor should establish a mutually agreed schedule of work with well-defined milestones for submission to and endorsement by the Graduate Program Director before submission to GPS. The Department can require a student to withdraw in case of non-satisfactory progress over a period of one semester. Furthermore, the Department Chair reserves the right to deny graduate students office space 24 months after their first registration and supervisors may terminate financial support after this time.

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.

M.Eng. Environmental Engineering Option

This program is offered by the Faculty of Engineering. 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 CEEE 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 (see Appendix D) and six credits from List C (see Appendix D); each course should be from a different department.

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.

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/current/programs/thesis/guidelines/preparation/>

The special case of direct transfer into the Ph.D. program (“fast-track”) is described at the end of this section.

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). A list of courses offered this year is provided in Appendix C. Courses from this list or from those offered in other departments are selected in consultation with the supervisor. It is clarified that ContEd courses are not eligible graduate courses. 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. These extra courses can be at the undergraduate level, subject to the approval of the thesis supervisor.

Students admitted to Ph.D. 1 or transferred to Ph.D. 2 directly from their Master’s program (see details later) are required to take four one-semester graduate courses (500 level or higher) of which three at least are lecture-type courses. 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.

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. 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 PhD 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.

* 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 PhD 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. However, in the case of students who were admitted at the PhD 1 level or who are required to take a minimum of four courses take the Preliminary PhD 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. Fast-track candidates are treated the same way as done with Ph.D. 1 admitted students. Refer to Appendix A for the 2010-2011 schedule.

c) Ph.D. Seminar:

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 4th semester since entering into the program.

For the graduate students in mining engineering, MIME 776 includes the “comprehensive examination” taking place prior to and as a requirement for PhD 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. 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 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 you consult with your supervisor on a regular basis. As soon as possible after starting the program, you should develop a research topic and research plan that is assigned or approved by your supervisor. Students are expected to inform themselves of program requirements and deadlines; to work within these deadlines; to communicate regularly with the supervisor and to submit progress reports as required.

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 three possible external examiners of the thesis. The supervisor and the student should then complete and sign the “Thesis Submission Form” before being submitted to the Graduate Program Director for approval. The student is required to have the approval of his/her thesis supervisor to submit his/her thesis. Upon receipt of a satisfactory report from the external examiner, the date of the final oral defense is scheduled and conducted as per GPS’s regulations/guidelines. The composition of the PhD 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 these forms.

c) Time Limitation

The residence period for the completion of a Ph.D. degree is two years starting from the Ph.D. 2 level or 3 years starting from the Ph.D. 1 level. 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. Extensions may be granted under mitigating circumstances but prior health reasons cannot normally be invoked to justify such an extension unless they were properly documented and submitted when the problem arose.

The student and supervisor should establish a mutually agreed schedule of work with well-defined milestones for submission to and endorsement by the Graduate Program Director before submission to GPS. The Department can require a student to withdraw in case of non-satisfactory progress over a period of one semester. Furthermore, the Department Chair reserves the right to deny PhD students office space 36 months after their first registration and supervisors may terminate financial support after this time.

d) Residence requirements for doctoral programs

Doctoral programs require a minimum of three years full-time residence (6 full-time terms) unless the student is admitted to PhD 2 (4 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., PhD 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.

It is customary (but obligatory for those receiving funding) for students to spend the greater part of each summer working on their research, and those who do not do so are unlikely to complete a satisfactory dissertation in the prescribed minimum time.

e) Direct Transfer into the Ph.D. Program

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. In general such request is treated favourably if the following criteria listed below are met.

- 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.
- Letter of recommendation from the thesis supervisor that comments favourably on 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. The Graduate Program Director will schedule the examination that must be held within the following three month period. The examination committee consists of five members, The Department Chair – who also chairs the committee, the Graduate Program Director, the supervisor and two examiners. If successful, the candidate is permitted to re-register at the Ph.D. 2 level. The requirement of another Ph.D. Preliminary Oral Examination is waived and all graduate courses taken during M.Eng. registration will count towards the course requirements of the Ph.D. degree (4 courses in total in this case). The student must also register in the appropriate Ph.D. course (MIME 776 for Mining, or MIME 701 for Materials Engineering).

If the candidate fails the Preliminary Oral Examination, he/she will be permitted to complete the Master's degree.

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 and GPS.

6. TRACKING OF RESEARCH PROGRESS

This is mandatory McGill policy. The policy which is described on GPS's website <http://www.mcgill.ca/gps/policies/tracking/> basically stipulates that:

1. Annually, each student must fill out the applicable sections of the form (available on our website; copy can be seen in Appendix E), seek his/her supervisor's approval and submit in person 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 In-Ho Jung is the departmental representative supervising the progress tracking process in 2010-11.
2. All new MEng/MSc thesis and PhD students within two months since they first register in their program fill out section 1 in consultation with their supervisor and submit the form. 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. I-H Jung) 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.
3. All other 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 sign the form before submitted to the departmental representative. A student who does not agree to sign the Form must write a statement detailing his/her objections. In case of disagreement the procedure described in point 2, above is followed.
4. In the event that the research progress is unsatisfactory, a new set of interim objectives should be developed for the student at a special meeting called by the Progress Tracking Supervising Professor (Prof. I-H Jung) 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.

5. 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.
6. The above procedure (point 3, above) is repeated every year thereafter by submitting the report to the Progress Tracking Supervising Professor (I-H. Jung), via the Graduate Studies Coordinator Ms. Barbara Hanley.
7. 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/MSc (Thesis) student receives \$16,500 per year while Ph.D. students receive \$19,000 per year as per current NSERC approved 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. Currently these limits are: \$19,000 for MEng/Quebec students; \$22,000 for MEng 1/Out-of Province Canadian students (reduced down

to \$20,000/year in MEng 2); \$30,000 for MEng 1/International students (reduced down to \$25,000/year in MEng 2); and \$22,000 for all PhD students. 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's 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 Fonds québécois de la recherche sur la nature et les technologies (FQRNT) and by the federal government in the form of NSERC (Natural Sciences and Engineering Research Council of Canada) postgraduate scholarships.

NSERC/FQRNT industrial postgraduate scholarships are awards that are based on a specific research proposal involving a departmental professor, a collaborating company and a graduate student. The basic requirements are much like those of the regular NSERC postgraduate scholarships. All applicants require departmental endorsement and a signed commitment from the sponsoring company.

In the case of doctoral students receiving NSERC or FQRNT 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 \$22,000/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.

PGF and Pro-GF Fellowships: Each year, the department receives several PGFs (Principal's Graduate Fellowship) - the value of this fellowship is \$2,500 and is not-renewable. The recipients are chosen (on the basis of academic record) by the departmental Graduate Studies Committee among the new doctoral students who start their studies in January as well all new Master's students. In addition the Department receives a few Pro-GFs

(Provost's Graduate Fellowships) amounting to \$4,000 each for the purpose of recruiting highly qualified Master's students. This award is not-renewable. No applications are required for the above Fellowships.

Differential Fee Waivers (DFW): Differential fees for high calibre international Ph.D. (but not Master's) students are waived through the MIDA program. High calibre international Ph.D. students pay the same fees as Quebec students. More information is available at <http://www.mcgill.ca/engineering/graduate/funding/>

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 \$2000 to \$5000 per year. Scholarship recipients are selected on the basis of their academic performance and research record as evidenced in their progress tracking forms.

Teaching Assistantships (TA): Each semester, the department announces and posts teaching assistant positions for various courses. Interested graduate students must apply using a prescribed form to the departmental administrative assistant. The course instructors select the TAs for their courses among those who have applied. Pay scales are described 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 R. Guthrie. 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 laboratory personnel-go to <http://www.mcgill.ca/ehs/training/whmis/> for more info. Additional info can be found at <http://www.mcgill.ca/ehs/laboratory>

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 one week 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 and critical. 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.
- ❑ Clear statement of the intended contribution to original knowledge.
- ❑ Summary of Results, if the program is well in progress with suitable discussion.
- ❑ 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-point 1 ½ spaced text. Documents not respecting these guidelines will be returned to the candidate and the exam rescheduled if necessary.

2. 2010-11 Schedule of Preliminary Ph.D. Oral Exams

Student Entered Program in	Students Status is			Entry to the left indicates when the student will take their preliminary exam
	PhD1	PhD2	PhD2 with four lecture courses*	
May 10	November 11	May 11	November 11	
September 10	November 11	May 11	November 11	
January 11	May 12	November 11	May 12	

*supervisor must indicate in writing by the end of the first semester that the student is required to complete additional coursework 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. 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.

APPENDIX C

Graduate Courses Offered in 2010-2011

Note: This list is tentative. Courses may be cancelled or added according to demand.

SEMINAR COURSES

MIME 670 Graduate Seminar (6 credits; N. Quitoriano & M. Cerruti)

MIME 673 Graduate Seminar (6 credits; H. Mitri)

MIME 771 Ph.D. Seminar (6 credits; N. Quitoriano & M. Cerruti)

MIME 776 Ph.D. Seminar (6 credits; H. Mitri)

PhD THESIS PROPOSAL

MIME701 Thesis Research Proposal (0 credits; G.P. Demopoulos)

LITERATURE REVIEW COURSE

MIME661 Literature Review (3 credits; I-H. Jung)

SPECIAL TOPICS

MIME 606 Mineral/Metal Production & Marketing I (3 credits; I-H. Jung)

MIME 608 Mineral/Metal Production & Marketing 2 (3 credits; I-H. Jung)

PROJECT COURSES

MIME 620: Rock Mechanics 1. F. Hassani & H. Mitri. Offered in the: Fall, Winter, Summer.

MIME 621: Rock Mechanics 2. F. Hassani & H. Mitri. Offered in the: Fall, Winter, Summer.

LECTURE COURSES

FALL

MIME 520 (3) Stability of Rock Slopes. F. Hassani.

MIME 521 (3) Stability of Underground Openings, H. Mitri

MIME 522 (3) Mineral Reserve Assessment Techniques. R. Dimitrakopoulos.

MIME 525 (3) Stochastic Orebody Modelling. R. Dimitrakopoulos.

MIME 544 (3) Mineral Processing Systems I (J.A.Finch & K. Waters)

MIME 561 (3) Advanced Materials Design (Mathieu Brochu)

MIME 569 (3) Electron Beam Analysis of Materials (R.Gauvin, F. Paray, H. Campbell)

MIME 635 (3) Finite Elements in Rock Mechanics (H.Mitri)

MIME 640 (6) Advanced Mineral Processing (J.A.Finch)

MIME 653 (3) Transport Phenomena - Process Metallurgy (Mainul Hasan)

WINTER

MIME 545 (3) Transmission Electron Microscopy (R. Gauvin)

MIME 551 (3) Electrochemical Processing (George Demopoulos)

MIME 560 (3) Joining Processes (Mathieu Brochu)

MIME 565 (3) Aerospace Met-Mtls & Mfg. Procs. (R. Chromik & S. Yue)

MIME 572 (3) Computational Thermodynamics (In-Ho Jung)

MIME 576 (3) Advanced Steelmaking and Processing (Roderick Guthrie)

MIME 626 (3) Applied Geostatistics. R. Dimitrakopoulos.

MIME 631(4) Advanced Stochastic Optimization in Mine Planning. R. Dimitrakopoulos.

SUMMER

MIME 513 (3) Mine Planning Optimization Under Uncertainty. R. Dimitrakopoulos

APPENDIX D

Course Lists for M.Eng. Environmental Engineering Option

List B: Complementary Engineering Courses:

Agricultural & Biosystems Engineering

ABEN 322	ABEN 435	ABEN 518	ABEN 616
ABEN 416	ABEN 515	ABEN 609	

Chemical Engineering

CHEE 370	CHEE 471	CHEE 572	CHEE 673
CHEE 455	CHEE 472		

Civil Engineering

CIVE 323	CIVE 572	CIVE 652	CIVE 664
CIVE 430	CIVE 574	CIVE 657	CIVE 666
CIVE 451	CIVE 575	CIVE 658	CIVE 684
CIVE 526	CIVE 577	CIVE 659	CIVE 686
CIVE 550	CIVE 585	CIVE 660	CIVE 688
CIVE 553	CIVE 651		

Mechanical Engineering

MECH 534	(not open to students who have passed CHEE 472A)		
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Mining and Materials Engineering

MIME 461	MIME 555	MIME 622	MIME 638
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List C: Complementary Non-Engineering Courses:

Agricultural & Environmental Sciences

AGEC 333	AEPH 510	SOIL 631	WILD 605
AGEC 620	MICR 331	WILD 333	WOOD 420
AGEC 633	MICR 761	WILD 415	ZOOL 315
AGEC 679	SOIL 331	WILD 437	

Atmospheric & Oceanic Sciences

ATOC 310	ATOC 512	ATOC 568	
ATOC 330	ATOC 530		

Biology

BIOL 305	BIOL 331	BIOL 470	BIOL 533
BIOL 308	BIOL 432	BIOL 483	

Chemistry

CHEM 307

Earth & Planetary Sciences

EPSC 430	EPSC 549	EPSC 580
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Economics

ECON 326	ECON 405	ECON 662
ECON 347	ECON 622	

Epidemiology & Biostatistics

EPIB 610

Geography

GEOG 300	GEOG 308	GEOG 404	GEOG 522
GEOG 302	GEOG 321	GEOG 505	GEOG 523
GEOG 305	GEOG 322	GEOG 506	GEOG 535
GEOG 306	GEOG 350	GEOG 510	GEOG 537

Law

CMPL 508	CMPL 580
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Management

MGPO 638	MGPO 640
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Occupational Health

OCCH 604	OCCH 605	OCCH 616
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Political Science

POLI 469

Religious Studies

RELG 685

Sociology

SOCI 438

Urban Planning

URBP 505	URBP 614	URBP 619
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APPENDIX E: ANNUAL GRADUATE STUDENT RESEARCH

OBJECTIVES/PROGRESS REPORT FORM

(This report should be submitted to Prof. I.-H. Jung by Oct. 30th every year)

Name: _____

Supervisor: _____

Degree & Year: _____

Co-Supervisor: _____

Term of reporting: Fall/

Is this Interim Progress Report following an unsatisfactory progress report? If yes, please check the box: ☐

1. Objectives and timelines for THIS year (your starting term) until August 31st next year (or end of your graduate study)

- Research Topics:
- Course work
 -
 -
 -
- Research
 -
 -
 -
 -
 -
 -
- Other: Preliminary PhD Exam/Graduate Seminar
 -
 -

2. Progress towards research objectives, to be completed by student in reference to previously stated objectives *(based on part 1 in the last year objectives/progress report form)*

- Research Topics:
- Number of meetings with supervisor during the period:
- Course work (grade)
 -
 -
- Research
 -
 -
 -
 -
 -
 -
- Other: Preliminary PhD Exam/Graduate Seminar
 -
 -

3. Research Achievements: Publications and Presentations in Conferences and Scientific meetings during the past year: *(Please indicate all publications and presentations based on your study at McGill Univ. Attach the first page of each published article, letter of acceptance, or abstract of your presentation in official program)*

A. Journal publications (Published / Accepted)

- 1.
- 2.

B. Conference publications-full papers (Published / Accepted)

- 1.
- 2.

C. Presentations without full papers (Presented / Accepted)

- 1.
- 2.

D. Other

4. Other Activities and Accomplishments

(Including funding, prizes and awards, committee service, research assistantships, teaching, and other, as appropriate) *(Please indicate all activities and accomplishments during your study at McGill Univ.)*

- Teaching Assistant / Teaching
 -
 -
- Prizes, Scholarship, other awards
 -
 -
- Committee Services / Other
 -
 -

By signing below, all parties acknowledge that the objectives and timelines described above are acceptable. **Please note that failure to meet objectives on any two progress reports may be cited as grounds for requiring that a student withdraw from the program of study.**

Student: _____

Date: _____

Supervisor(s): _____

Date: _____

Research Progress Coordinator (Prof. In-Ho Jung): _____

Date: _____

☐ Student did not sign form and does not agree with the objectives (explanation attached)