



Faculty of Engineering

GRADUATE STUDIES HANDBOOK

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ABBREVIATIONS

DEGS	Dalhousie Engineering Graduate Student Society
EC	Examining Committee
FGS	Faculty of Graduate Studies at Dalhousie University
GC	Graduate Coordinator (Departmental)
GSC	Graduate Studies Committee of the Faculty of Engineering
GSAO	Graduate Studies Admissions Office of the Faculty of Engineering
GSIS	Graduate Studies Information System (Online system)
NSERC	Natural Sciences and Engineering Research Council
SC	Supervisory Committee
TS	Thesis or Project Supervisor

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1.0 PREAMBLE

Welcome to graduate studies in the Faculty of Engineering at Dalhousie University! You are part of a diverse, thriving community of innovative research and teaching at Dalhousie. Your role in this community is vital in our collective pursuit of creative solutions to today's most challenging problems. Many of the world's best-known universities attribute their reputations to excellence in research, much of which is carried out by dedicated graduate students. We wish you much success and personal growth during your graduate training at Dalhousie.

The following document summarizes the policies and general information concerning your graduate studies program in the Faculty of Engineering at Dalhousie, including funding, supervision, degree requirements and regulations. It should be noted that the rules and regulations described here are specifically applicable to Engineering students; however, they do comply with the overall university regulations (Graduate Studies Calendar; academiccalendar.dal.ca), the Faculty of Graduate Studies (FGS, www.dal.ca/faculty/gradstudies; Graduate Studies Calendar), and Senate of Dalhousie University (www.dal.ca/dept/university_secretariate/university_senate), and each department may have variations in details (www.dal.ca/faculty/engineering/departments). As such, this document is intended to complement but not replace the Dalhousie University Graduate Studies Calendar and other regulations. It is necessary that all students familiarise themselves with the regulations stated in the Graduate Studies Calendar. Any questions pertaining to these policies should be brought to the attention of the Faculty of Engineering Graduate Studies Committee (GSC).

This document is intended to assist you, the graduate student, toward the successful completion of the degree program. The guidelines and information presented here should be viewed in the context of “normal” circumstances, and are not necessarily exhaustive.

2.0 DEGREE PROGRAMS AND REQUIREMENTS

Graduate students in the Faculty of Engineering may be pursuing one of a number of degree programs, including the Master of Engineering (MEng), Master of Science (MSc), Master of Applied Science (MAsc), or the Doctor of Philosophy (PhD) degree. It is our intent here to provide an overview of general information regarding each degree programs in the Faculty of Engineering. The Graduate Studies Calendar (academiccalendar.dal.ca) and the university FGS should be consulted for detailed and up-to-date information. Any information specific to a department within the Faculty of Engineering (courses, policies) is available on their respective websites, and also from their graduate coordinators and administrators. An overview of the graduate programs and timelines are provided in Appendices A.1 and A.2. A full listing of Graduate Coordinators (GC) and Graduate Administrators in the Faculty of Engineering are provided in Appendices A.3 and A.4 respectively. Representatives from the Faculty of Engineering on the Dalhousie Faculty of Graduate Studies Faculty Council is provided in Appendix A.5.

2.1 Master of Engineering (MEng)

The MEng degree is intended to serve the needs of students who wish to obtain advanced knowledge in a specialized field, but who do not require traditional research training. Thus, it involves a larger course load than the more research intensive MAsc or MSc degree, and a practically-oriented project. The MEng is currently offered in Civil Engineering, Electrical and Computer Engineering, Industrial Engineering, Internetworking Engineering, Mechanical Engineering, and Process Engineering and Applied Science.

2.1.1 MEng Requirements

The MEng requires a course load of a minimum of seven half-credit courses (with department variations), fulfilling the graduate seminar requirement, and in most cases a project. The requirement for the MEng in Internetworking consists of ten designated half-credit courses and a seminar. Senior level undergraduate courses (maximum of two) not taken by the student for previous credit may be included in the program subject to prior approval by the department. A project is required as a part of the program for some MEng degrees. Project courses may require students to apply for research or industrial positions and undertake a four to six month project culminating in a written report, which is examined by the students supervising committee.

2.2 Master of Applied Science (MAsc) and Master of Science (MSc)

The MAsc and MSc are the thesis-based research-oriented graduate degree offered at the Master's level by the Faculty of Engineering. The MAsc is offered in all departments except Internetworking (MEng only) and Engineering Mathematics (MSc only) and Food Science (MSc only). The MAsc and MSc both involve a comprehensive, research-oriented thesis in addition to other specified program requirements.

2.2.1 MAsc/MSc Requirements

MAsc and MSc graduate programs consist of a minimum of four half-credit courses, the graduate seminar, and a thesis which must be successfully defended in front of the Supervisory Committee (SC) by the end of the program. Only one senior level undergraduate course may be taken as part of the four course credits. Students are encouraged to consult with their respective department for individual requirements in addition to these, as requirements may vary from department to department. The thesis topic for a specific student is selected upon the advice and/or approval of the Thesis Supervisor (TS). Course selection for students should be made in consultation with the TS, their Supervisory Committee (SC), and the graduate coordinator (GC) if required. Students may be required to take several additional courses depending on their background.

2.3 Doctor of Philosophy (PhD)

The PhD is offered through the Faculty of Graduate Studies. However, students are registered in a home department or school, in engineering. The PhD is the highest degree offered at the University and requires a comprehensive and student-driven thesis. Students are also able to explore the Interdisciplinary PhD program offered through the Faculty of Graduate Studies (idphd.grad.dal.ca).

2.3.1 PhD Requirements

PhD graduate programs consist of coursework, the graduate seminar, and a thesis. The student's TS and SC has the responsibility for recommending the course of study for each Doctoral student. Four half-credit courses beyond a Master's degree and the graduate seminar are normally required for the PhD degree, although additional courses may be required depending upon the background of the student, upon the recommendation of the SC. At least half of the required course credits should be taken at Dalhousie. With the approval of the TS and SC, a student may be allowed to take more courses at other universities if they are not available at Dalhousie. No undergraduate course credits are allowed in a PhD degree program.

2.3.2 *PhD Comprehensive Examinations*

The Faculty of Engineering Guidelines for the PhD Comprehensive Examinations are presented in Appendix C. The comprehensive examination takes place after the completion of the required coursework for the degree – normally within twelve to fifteen months of study from initial registration, and consists of at least two written examinations, followed by an oral examination. The examinations are set by an examining committee, which is recommended by the candidate's SC.

The “Ph.D. Comprehensive Exam Results” form (Appendix B.4) will be returned to the graduate coordinator to record the grade on GSIS. The results shall indicate “pass”, “fail” or “re-examination (marginal failure)”. Recommendation of the examining committee to “re-examine” is permitted if the failure was marginal. Re-examination should be carried out within six months of the initial examination, and students are permitted the opportunity to re-examine only once. Students requiring re-examination may not necessarily be required to re-write each written examination, as decided by the examining committee. The student will be given a letter by the department indicating the results of the comprehensive examination, and the letter will be added to the student's file. Students receiving a recommendation of “fail” will be provided a written letter of the outcome from the GC and dismissed from the program.

2.4 Graduate Seminar

All graduate students in the Faculty of Engineering are required to meet a seminar requirement, which includes a requirement to deliver seminars according to the guidelines given by their departments, as well as attending and participating in all graduate seminars held in their department throughout the duration of the student's residency period. The department GC is responsible for deciding whether a student has met the requirement.

2.5 Transferring Between Programs

2.5.1 *Transferring from the MASc or MSc to the PhD Program*

Students registered in an MASc or MSc program in the Faculty of Engineering and making exceptional progress after one year in the program (and normally within 16 months of initial registration) may be considered for transfer to the PhD program, according to the following conditions:

1. If they have (a) demonstrated exceptional research performance and potential and (b) completed a minimum of four (4) courses with an average grade of at least A- (GPA=3.7) (Please note biomedical engineering requires 5 courses). Successful candidates will normally have to complete a total of eight (8)

courses for the PhD requirement, including those taken while registered for the MASc/MSc program. The total number of courses may, at times, be reduced upon the recommendation of the TS and SC, and approval by the GSC and FGS.

2. Before requesting a transfer, the student should be fully aware of the objectives, requirements and procedures of the PhD program. The SC of the student should have reviewed the student's progress at a prior committee meeting and be in agreement with the transfer. This review should include the background knowledge of the candidate, and the progress attained to date in the MASc/MSc program.
3. To apply for a transfer, the student's TS shall inform the GC by submitting the following documents (a) a formal request for transfer to the PhD program by the student, with approval by the TS, (b) a funding commitment letter from the TS or evidence of external support, c) a report on the progress to date in the MASc/MSc research project, (d) a proposal for a program of research for the PhD, and (e) a separate letter from the SC outlining their recommendation on the proposed transfer.
4. The GC of the Department will assess the application, and give his/her recommendation to the GSC in writing. Departmental approval must be obtained by the GC before sending the letter to the GSC. After approval from the GSC, a letter shall be written by the Chair of GSC to FGS recommending the final approval of the transfer for the student to PhD program. This letter will be forwarded, along with all supporting documentations (progress report, PhD proposal, transcript) to the Dean of Graduate Studies for approval, with a copy to the Department Head.

2.5.2 General Program Change

Graduate students wishing to change from one program to another within the Faculty of Engineering must consult with the Graduate Program Coordinators in the appropriate departments. A formal written request should be made by the student to the GC. To grant the request, the department(s) must concur and notify the FGS in writing. The FGS will issue final approval.

2.5.3 Transfer of Credits between Degree Programs

Granting of credits to a student's program of studies for courses taken prior to commencement of the program requires the recommendation of the department and approval of the GSC. A request for this transfer of credit must be made to the department within four months of the student's first registration.

3.0 SUPERVISORS AND SUPERVISORY COMMITTEES

All graduate studies programs require an appointed thesis supervisor (TS), decided before admission to the program. The relationship between a graduate student and his/her supervisor is very important and requires a great deal of mutual respect. Section 9.4 of the FGS Regulations outlines the rights and responsibilities of the student and the supervisor, as well as the graduate department (a summary is provided in Appendix D). In addition to a TS, the student is also supported by a selected supervisory committee (SC). The SC should be formed within 8 months of initial registration. SC members are selected by the TS and should complement expertise available to assist the student in completing the thesis research. Some departments require students to submit the “Supervisor Committee Approval Form”, which can be found in Appendix B.1.

The SC for an MASc or MSc student should consist of, at minimum, a TS (and co-supervisor if applicable), another faculty member from the department of the student, and a third faculty member from outside of the student's department. Additional members may be considered in addition to these, and the composition of the SC can be changed at a later date if necessary. The membership of this committee is approved by the graduate coordinator on the student's program form on GSIS. The TS is responsible for the direction of the appropriate research or industrial project.

The SC for PhD students should consist of a minimum of three members including the TS, with at least two members (including TS) from the student's home department, and at least one member drawn from outside the student's home department (total number of members required on SC may vary with department). The SC may also serve as the comprehensive examination committee for the PhD student. All members of PhD SCs will normally hold a doctorate degree. In some cases, the PhD research may require the guidance of a specialist from an area of study other than that of the TS. In such cases, the appointment of a TS and a co-TS may be necessary.

The SC will work with the student to coordinate the overall program in accordance with all regulations concerning the degree sought. The SC will meet immediately after appointment to evaluate the qualifications of the student, and to discuss and approve a program of study. They will also meet as needed for the purpose of evaluating and discussing the proposed thesis research project, and assist the student as a group or on an individual basis with problems or concerns arising from the research. For PhD students, the SC are also often members of the Examining Committee for the PhD Thesis.

4.0 PROGRAM/COURSE OF STUDY APPROVAL

The course of study for each graduate student can be unique and must be approved by the GC of the student's home department. Students are required to consult with their TS, and graduate coordinator to define their program, which includes their courses and SC, and ensure that this information is entered and approved by the graduate coordinator on the program form on GSIS. Some departments require submission of the "Graduate Student Program Form", which can be found in Appendix B.2. Changes to a program may be made provided approval of the TS and graduate coordinator is granted. This is also by way of the program form on GSIS, and some departments require students to submit the "Graduate Student Program Update Form", found in Appendix B.3.

5.0 EVALUATION OF PERFORMANCE

5.1 Grade Requirements

The minimum passing grade for Master's and PhD students is "B-" in all course requirements of their degree program. Graduate students may carry only one course failure; however, the failed course must be repeated or replaced with an additional, relevant course, with any subsequent failure leading to academic dismissal.

5.2 Thesis Progress Evaluation by Supervisory Committee

Students and TS's are encouraged to have regular meetings which may or may not include other members of the SC. This enables the student to get advice on problems which may be encountered and enables the TS/SC to evaluate the progress of the research.

TSs and SCs are urged to make regular evaluations of progress on coursework and research, and to provide written feedback to graduate students. On the basis of regular committee meetings, the SC may consider the student's progress to be unsatisfactory. If such is the case, the student shall be notified in writing by the SC. Discrepancies between the student and TS/SC concerning research performance should be brought to the attention of the graduate coordinator.

5.3 Annual Progress Reports

Each year, one month before the anniversary of the term of initial registration in the program, all graduate

students must submit a progress report on GSIS. This is a requirement of all graduate students at Dalhousie to ensure that adequate progress is being made by the student in their program, to protect the student by having a complete record of his/her graduate study; and to help the student, TS, and Graduate Coordinator meet program goal dates. Failure to submit an annual progress report on time may result in delayed registration and payment of scholarships in the following term.

5.4 Thesis and Project Proposals

In addition to regular SC meetings, each graduate student in an MASc, MSc or PhD program will normally present a proposal or project plan to their SC in written form by the end of the first year. The thesis proposal should include a review of the pertinent literature, background information on the proposed project, research objectives, materials/equipment required, methods, a projected schedule, and any preliminary results. The student will also normally make an oral presentation of the proposal to the SC at a scheduled meeting, with time for discussion and informal exchange of ideas to focus the research. Submission of a project proposal during the second year may be required as part of the comprehensive examination process for PhD students in some programs (Appendix C). Major modification of the research objectives and plan as presented and agreed upon at this meeting should only be considered if the SC is notified and in agreement. In MEng programs with project requirements, students will normally present a project plan to their SC before the end of the second term of studies. The presentation should include the objectives of the project, relevant literature, methodology, and the projected schedule.

5.5 Withdrawal

There are some circumstances when students may be asked to withdraw from their graduate program of study based on unsatisfactory performance as described above. Normally, the Graduate Coordinator of the department involved, in consultation with the TS and SC, will recommend to the FGS that a student be required to withdraw, with supporting information. If the FGS concurs with the recommendation, the Dean of Graduate Studies will inform the student that he/she is required to withdraw. This letter will be copied to the Registrar.

5.6 Grievances and Appeals

A grievance is usually initiated by a student if some condition(s) in his/her working environment at the university is deemed unacceptable. This may be a grievance regarding academic work, interpersonal relationships with faculty, staff or other students, safety or other working conditions. In the course of graduate study, a student is subject to a number of decisions based on university or faculty regulations. If a decision is

considered to be an error in procedure, the student may launch an appeal of the decision. A grievance or appeal should be brought to the attention of the TS or SC, or raised with the appropriate Graduate Coordinator. If the matter cannot be resolved at this level, it should be referred to the FGS who shall resolve the matter with the assistance of the GSC, the Dean of Engineering, or the Dean of Graduate Studies, as appropriate.

6.0 THESES AND PROJECT REPORTS

Guidelines for the preparation of graduate theses may be obtained from the FGS website: <http://www.dal.ca/faculty/gradstudies/currentstudents/thesesanddefences.html>. Although students are given a reasonable amount of freedom in selecting thesis format, the online guide must be consulted on acceptable and unacceptable writing practices.

6.1 MEng Project Report

MEng students, except those in Internetworking, must complete a scholarly, written work with prior approval of their SC. This may consist of a laboratory research project, an advanced design project, analysis of research data, or an in-depth review of an approved aspect of the scientific literature. MEng Projects are not required to be submitted to the FGS; however the final version, after corrections and approval by the SC, is to be submitted to the graduate office of the student's department.

6.2 MAsc and MSc Thesis and Defence

The Master's thesis research is undertaken after approval of the thesis proposal. Students must seek the approval of their TS and SC to ensure that the volume and quality of work meets the standards of the Faculty of Engineering, and is sufficient to warrant thesis preparation. Students are encouraged where possible to publish their results in the refereed literature prior to defence of the thesis.

For MAsc and MSc theses, the "Appointment for Oral Examination" form (Appendix B.7) is submitted to the Graduate Administrator when the TS and SC are satisfied with the quality, style and format of the thesis or project and the SC has agreed to a date for the defence or presentation. This form must be signed by all committee members and be accompanied by a final copy of the thesis at least twelve business days prior to the defence. The format and style of the thesis or project will be examined, and the Graduate Administrator will reserve a room and distribute defence announcements. The GC of the department will either act as, or appoint,

a chair for the defence, and the chair cannot be the TS of the student. Note that a defense will not be scheduled until all other course requirements are met, including completion of graduate courses and the graduate seminar.

The Master's thesis defence is an oral examination designed to test the knowledge of the candidate on the topics discussed in the thesis. The candidate must be prepared to defend the validity of the results, discussion and conclusions presented in the thesis. The defence normally begins with an introduction of the candidate and examining committee by the chair, followed by a 25 minute oral summary of the thesis by the candidate. The oral presentation is normally followed by a period of questioning by the examining committee. The moderator or chair of the defence may invite questions from the audience if time permits. The committee will then deliberate *in camera*, and present the candidate with a decision immediately following the defence. The decision can be 'pass' with no corrections, 'pass' with minor or major corrections and a timeline agreed upon by the committee, a 're-examination', or 'fail'. The results of the defence/presentation must be recorded on a "Results of an Oral Examination" form (Appendix B.8), and recorded on a grade change form to. Additionally, after final approval of the thesis by the examining committee, the student should submit the thesis in electronic form to the GC. Instructions on how to submit the thesis online is on the FGS website at: (<https://www.dal.ca/faculty/gradstudies/currentstudents/thesesanddefences/submission.html>).

6.3 PhD Thesis and Defence

PhD thesis research and preparation begins after approval of the thesis proposal.

PhD thesis defenses are arranged through FGS directly, and not home departments. A timeline for preparing for the PhD defence beginning at 6 months prior to a projected defence date, with appropriate forms and steps, is provided on the FGS website at: <https://www.dal.ca/faculty/gradstudies/currentstudents/thesesanddefences/defense.html>.

An oral defense of the PhD thesis will not take place until all other program requirements are met, including completion of graduate coursework, completion of comprehensive examination, and completion of the graduate seminar. When the TS and SC agree that the student is prepared to defend their thesis, a 'Request to Arrange Oral Defence of a Doctoral Thesis' form (<https://www.dal.ca/faculty/gradstudies/currentstudents/thesesanddefences/forms.html>) should be completed and forwarded to FGS. Indicated on this form, the TS/SC will need to identify an external examiner from outside of Dalhousie to be a member of the examining committee of the PhD. The Examining Committee will normally include the SC in addition to the external examiner. At least two members of the Examining Committee must be from the home department of

the student. External examiners must hold a PhD, be experts in their fields, and must not have been directly involved in the student's research project (Full conflict of interest guidelines can be found on the FGS site). External examiners are sent a finished unbound copy of the thesis at least five weeks in advance of the proposed oral defence date. The external examiner will normally be encouraged to be present at the defence to lead the questioning of the student or participate via teleconferencing or video-conferencing. For PhD defences, the chair is appointed by the FGS, and a non-examining department representative is appointed by the GC of the department.

The PhD defence begins with an introduction of the candidate and examining committee, followed by a 25 minute oral summary of the thesis by the candidate. The oral presentation is normally followed by a period of questioning by the Examining Committee, beginning with the external examiner. The chair of the defence may invite questions from the audience if time permits. The examining committee will then deliberate *in camera*, and present the candidate with a decision immediately following the defence. The decision can range from pass with no corrections, pass with corrections to be made within a suggested timeline by the Examining Committee, re-examination, or fail.

After final approval of the thesis by the Examining Committee, the student will submit the thesis in electronic form to the Faculty of Graduate Studies. Instructions on how to submit the thesis online is on the FGS website at: <https://www.dal.ca/faculty/gradstudies/currentstudents/thesesanddefences/submission.html>). Binding of a thesis is voluntary. The FGS website lists local businesses that provide this service, should you wish a commemorative copy for yourself or your department.

7.0 PERIOD OF STUDY

7.1 Master's Program

All Master's programs in the Faculty of Engineering are defined as one year for the purpose of assessing fees. Most students will take more than one year to complete their program. Students are required to pay program fees for one full academic year (three terms), and continuing fees thereafter. Course work should be completed during the first year of residency. The minimum time for completing the requirements of a Master's program is twelve months, with a maximum time of four years. It is important that student's continue to register each term, including the summer, until all program requirements are achieved. Part time studies have a maximum time of

five years to complete all requirements.

7.2 PhD Program

The PhD program in the Faculty of Engineering is defined as having a two year, full-time residency period for the program for the purpose of assessing fees. Most students will take more than two years to complete their program. Students are required to pay program fees for two years (six terms), and continuing fees thereafter. Courses should be completed within the term of residency. The minimum time to complete the requirements for the PhD program is two years, and the maximum time is six years. It is important that student's continue to register each term, including the summer, until all program requirements are achieved.

7.3 Part-Time Studies

Part-time registration may be granted to Master's students who are unable to engage in research or courses on a regular basis. Part-time students have up to a maximum of 5 years to complete their program. Part-time students are not normally eligible for scholarships or other forms of financial assistance. There is no part-time option for PhD studies.

7.4 Vacation

The University expects that full-time graduate students are either taking courses, or doing research throughout the entire calendar year. Students are normally entitled to two weeks of vacation. The time and duration of vacation leave should be discussed with the TS well in advance.

7.5 Leaves of Absence

7.5.1 Medical and Personal Leaves of Absence

Students who require a leave of absence from their program of study because of illness or personal situation may apply in writing for a leave of absence to FGS with an application form found at www.dal.ca/faculty/gradstudies/currentstudents/forms. Leaves of absence can be granted for up to three terms (one year). An official leave of absence does not count towards time in program. Students may not hold any Dalhousie Scholarships during a leave of absence, and during the leave, a student cannot study elsewhere for credit at Dalhousie. A leave frees the student from the necessity of paying tuition fees, and it also suspends any use of university services and privileges, including consultations with professors and library, student services uses. Please note that retroactive approval cannot be given for leaves of absence.

7.5.2 Parental Leaves of Absence

Parental leaves are considered independent of other leaves of absence. Information on parental leave and child care can be found at www.dal.ca/faculty/gradstudies/currentstudents/family. Graduate students expecting a child are eligible for a leave, and should meet with their TS and GC to discuss a timeline for returning. Specific scholarships may have particular policies, and students are encouraged to contact these institutions directly.

7.5.3 Withdrawal, Academic Dismissal and Reinstatement

A student may withdraw from their program under a variety of circumstances: based on their own request (voluntary withdrawal), at the request of the university, or automatically if they fail to maintain their registration by the required academic deadlines. Academic dismissal may also occur. A student who is academically dismissed cannot apply for re-admission for at least 12 months following the official date of the dismissal. Students must apply to be reinstated by following the admissions procedure. The application form must be accompanied by a letter explaining the circumstances surrounding the failure to register. Withdrawal from a graduate program can result in refusal for reinstatement to the graduate program. Failure to register and pay tuition fees for any term is considered to be voluntary withdrawal. Readmitted students (except those who were withdrawn for academic purposes) will need to pay fees for the terms in which they were not registered at the current fee rate to a maximum of three terms. Note that students may be readmitted only once during the course of their program.

8.0 FUNDING AND SCHOLARSHIPS

Success and timeliness in a graduate program requires appropriate financial support. It is important that all graduate student have a clear financial plan for their studies. Important information for students include estimates of the cost of living and studying in Halifax, Nova Scotia. Funding for graduate studies in the Faculty of Engineering varies from student to student, and can come from various sources, internal and external awards and scholarships, and personal and other funds. There are internal scholarship opportunities (internal to departments, the faculty and the university), external scholarship opportunities including provincial and national funding agencies, bursaries, research assistantships (often paid from a grant held by a faculty member), teaching assistantships, and personal funding sources and student loans. Information on specific scholarship opportunities and timing of competitions can be found on the FGS website at

www.dal.ca/faculty/gradstudies/funding.

8.1 Internal Scholarships and Awards

Internal scholarships that are applicable to students in the faculty of engineering and available through a competitive application process include Faculty of Engineering Scholarships (annual spring competition), and larger university awards such as the Killam Predoctoral Scholarship, and the President's Awards (full list available online with specific criteria described). Nova Scotia Graduate Scholarship (NSGS; www.dal.ca/faculty/gradstudies/funding/scholarships/nsgrad.html) competitions happen twice annually (December, February) for incoming students, and with a third competition in July for later-stage graduate students (2nd year MSc, 4-5th year PhD program). These are open to research graduates at Nova Scotia universities for innovative work aligned with or advancing Nova Scotia priorities as indicated on the applications forms, aiming to encourage exploration, discovery and innovation, and to attract and retain top-quality research graduates. FGS scholarships are internal awards that are decided at the department level (without an application process). Students are encouraged to contact FGS directly regarding bursaries (www.dal.ca/faculty/gradstudies/funding/bursaries).

8.2 External Scholarships and Awards

Students in the Faculty of Engineering are most often researching within NSERC (Natural Sciences and Engineering Research Council; www.nserc-crsng.gc.ca) supported fields, and those students with high academic standing and achievements are urged to apply for NSERC Postgraduate Scholarships. The NSERC competition takes place each fall and application information is usually available in early September on the web site. The Alexander Graham Bell Canada Graduate Scholarships at the Doctoral level and NSERC Postgraduate Scholarships at the Doctoral level are normally due to NSERC mid-October, but students are required to apply internally to FGS a few weeks prior. Applications to the Master's level competition for Canada Graduate Scholarships through NSERC are normally due to NSERC early December, and internally a few weeks prior. NSERC applications are all submitted online. Some students may be undergoing research that is more applicable to the CIHR (Canadian Institutes of Health Research) or SSHRC (Social Sciences and Humanities Research Council of Canada) than NSERC. It is important to note that in a given year of competition, students can only apply to one of the tri-council organizations for funding (NSERC, CIHR or SSHRC).

8.3 Teaching Assistantships

Teaching assistantships may be available for students who are asked to demonstrate laboratories or otherwise

assist instructors with the preparation or presentation of course material. Information on the availability and value of such awards may be obtained from the heads of departments. Students looking for additional support and training in teaching and learning are encouraged to explore programs with the Centre for Learning and Teaching at Dalhousie (www.dal.ca/dept/clt).

8.4 Travel Funding

Funding for travel for conferences or research purposes during graduate studies can also come from a number of sources. Students can be provided support through research grants of their supervisors. FGS provides graduate students with funding for conference travel if they are presenting a paper or poster, and students must apply for these funds directly to FGS at least one month prior to the date of travel (www.dal.ca/faculty/gradstudies/funding/grants.html). DEGS and DAGS (www.dags.ca) also have some conference travel awards available. Students are encouraged to contact these societies directly for more information. Societies hosting national and international conferences often have student travel awards available on a competitive basis. Students are also encouraged to explore these options when they are attending conferences.

9.0 GRADUATE STUDIES ADMINISTRATION AND SUPPORTS

9.1 Graduate Studies Research Office and Staff

The Faculty of Engineering Graduate Admissions Office is responsible for the planning, executing, and administration of all aspects of graduate admissions in the Faculty of Engineering. The administrator of the graduate studies program in the Faculty of Engineering is:

Ms. Heather Hillyard, B.A.

Admissions Officer, Dean's Office

5248 Morris Street

Heather.Hillyard@Dal.Ca

(902)494-1288

Each department has a Graduate Administrator who handles much of the day-to-day running of the graduate studies programs within departments. A current listing of Graduate Administrators (as of October, 2016) is provided in Appendix A.4.

9.2 Graduate Studies Committee (GSC)

The GSC consists of the Graduate Coordinators (GCs) from each department in the Faculty of Engineering, and a graduate student representative from the Dalhousie Engineering Graduate Society (DEGS). A Chair is elected from the membership. The Dean of Engineering, and the Graduate Studies Admissions Administrator are *ex-officio* members. The GSC meets monthly to deal with graduate student requests as appropriate, and acts as the graduate scholarship and awards committee for the Faculty of Engineering. The GSC also recommends the approval of new graduate courses and programs to the Senate, through FGS, and monitors academic regulations approved by Senate including periodic program reviews. The GSC also advises on academic policy and long term planning with regard to graduate studies. Current members (as of October, 2016) of the GSC are listed in Appendix A.3.

9.3 The Dalhousie Engineering Graduate Society (DEGS)

DEGS is a Student Union-recognised society which caters to the interests of graduate students in the Faculty of Engineering. The Society is represented in the Faculty of Engineering Council, the Library Advisory Committee, the GSC and most other Faculty standing committees whose activities directly or indirectly affect the graduate students in Engineering. The objectives of the DEGS are to represent and promote the unity and the welfare of graduate students and to further the intellectual and cultural interests of graduate students.

To achieve these objectives, the Society holds regular consultations with the university and Faculty administration on issues of collective interest to the graduate students. The Society also intervenes on behalf of individual graduate students whose valid and legitimate concerns are not being adequately addressed. The Society organizes talks and seminars as well as social activities. It liaises with other graduate student bodies both within and outside Canada.

Membership is automatic for all registered graduate students. Details are provided in the Student Union and DEGS constitutions. A portion of the Student Union fee is used for the activities sponsored by DEGS. The DEGS administration consists of an elected Executive President, Vice-President, and Treasurer as well as a Council made up of elected departmental representatives and an appointed Secretary. The Council is the highest

policy making body of the Society. Elections are usually held within the first week of November. All registered members are eligible to vote and be voted for. Details are given in the DEGS constitution. The DEGS regular meetings are held once a month. They are open to all graduate students although only council members can vote at such meetings. DEGS maintains an office in Sexton House.

APPENDIX A

Program Timelines

and

Faculty of Engineering

Graduate Studies Administration

Appendix A.1 Program Timelines and Requirements Summary

Appendix A.2 Annual Timeline Summary for Graduate Studies

Appendix A.3 Graduate Studies Committee

Appendix A.4 Graduate Administrators

Appendix A.5 Faculty of Graduate Studies Council Members

Appendix A.1: Program Timelines and Requirements Summary

MSc and MASc PROGRAM	
REQUIREMENT	TIME
Program Approval	End of first month after initial registration
Supervisory Committee Approval	Initial Registration plus eight months
Progress Reports	To be submitted one month prior to the anniversary date of initial registration - Online via GSIS
Title Approval (internal to department, may not apply to all departments)	Six months prior to the defence
Scheduling of Defence/Presentation. Thesis/Project to the Departmental Graduate Coordinator and Secretary and Supervisory committee with "Appointment for an Oral Examination Form"	Twelve (12) business days prior to the defence
Maximum time that all requirements must be met	Initial registration plus four (4) years
PhD PROGRAM	
REQUIREMENT	TIME
Program Approval	End of first month after initial registration
Supervisory Committee Approval	Initial Registration plus eight months
Progress Reports	To be submitted one month prior to the anniversary date of initial registration – Online via GSIS
Comprehensive Exams	In fourth term from initial registration; providing course work is complete (may vary with department)
Title Approval (internal to department, may not apply to all departments)	Six months prior to the defence
Scheduling of Defence: all through FGS	*see FGS website (www.dal.ca/faculty/gradstudies/currentstudents/thesesanddefenses.html) for timelines and checklist. PhD defences are arranged with Sr. Thesis Clerk (thesis@dal.ca)
Maximum time that all requirements must be met	Initial registration plus six (6) years

Appendix A.2: Annual Timeline Summary for Graduate Studies

Date	Requirement/Event
July/August	Registration for Fall Term
August 31	Deadline for final thesis submission for Fall convocation
September	NSERC applications available on-line
Early to Mid-October	Fall Convocation
Late September (Date changes annually)	Engineering Internal Deadline for NSERC Post-Graduate Scholarships – PhD level
December 1	Intent to Graduate forms must be submitted to FGS for those intending to graduate in May.
December 1	NSERC Deadline for Master’s level competition; Deadline for first competition of Nova Scotia Graduate Scholarships
Mid-December	Last day to complete all requirements in order to avoid registering in the Winter (check calendar for specific date)
January	Registration for Winter Term (check calendar for specific date)
February 15	Deadline for second competition for Nova Scotia Graduate Scholarships
mid-April	Applications available for Engineering Graduate Scholarships as listed in calendar.
May 31	Engineering Graduate Scholarship Applications due
mid-April*	Last day to complete all requirements for May Convocation (check calendar for specific date)
May	Registration for Summer Term 3 (check calendar for specific date)
May	May Convocation
July 1	Intent to Graduate forms for Fall convocation must be submitted to FGS.

Appendix A.3: Graduate Studies Committee (GSC)

(Current as of October, 2016)

Program	Graduate Coordinator	Location	E-Mail/Phone #
Graduate Studies Committee Chair, Biomedical Engineering	Dr. Janie Wilson	Dentistry, 5219	Janie.Wilson@dal.ca 902-494-6950
Graduate Studies Committee Secretary, Civil and Resource Eng.	Dr. Hany El-Naggar	D Building	hany.elnaggar@dal.ca 902-494-3904
Electrical and Computer Eng.	Dr. Jason Gu	C Building	j.gu@dal.ca 902-494-3963
Engineering Mathematics (Morris Street)	Dr. William Phillips	Morroy Building	william.phillips@dal.ca 902-494-3288
Industrial Eng. (Morris Street)	Dr. Alireza Ghasemi	Morroy Building	alireza.ghasmi@dal.ca 902-494-2968
Internetworking Eng.	Dr. Bill Robertson	B Building	bill.robertson@dal.ca 902-494-2702
Mechanical Eng.	Dr. Dominic Groulx	C Building	dominic.groulx@dal.ca 902-494-8835
Process Engineering and Applied Science (PEAS)	Dr. Adam Donaldson	F Building	adam.donaldson@dal.ca 902-494-4035

Appendix A.4: Graduate Administrators

(Current as of October, 2016)

Programme	Graduate Administrator	Location	E-Mail/Phone #
Biomedical Engineering	Ms. Sandra Pereira	Dentistry, 5 th floor	Sandra.pereira@dal.ca 902-494-3427
Civil and Resource Eng.	Ms. June Ferguson	D Building, 2 nd floor	June.ferguson@dal.ca 902-494-3960
Electrical and Computer Eng. 902-494-3996	Ms. Nicole Smith	C Building	ece.admin@dal.ca
Engineering Mathematics (Morris Street)	Mrs. Claire Chisholm	Morroy Building	Claire.chisholm@dal.ca 902-494-6085
Industrial Eng. (Morris Street)	Ms. Tara Snow	Morroy Building	Tara.snow@dal.ca 902-494-3281
Internetworking Eng. 902-494-1114	Ms. Shelley Caines	B Building	Shelley.Caines@dal.ca
Mechanical Eng. 902-494-3989	Ms. Kate Hide	C Building	mech.admin@dal.ca
Process Engineering and Applied Science (PEAS)	Mrs. Paula Colicchio	Sexton House	Paula.colicchio@dal.ca 902-494-4597
Graduate Admissions, Graduate Studies Committee	Ms. Heather Hillyard	Dean's office	Heather.Hillyard@Dal.Ca 902-494-1288

Appendix A.5: Faculty of Graduate Studies Council Members

(Current as of October, 2016)

Member	Department	E-Mail/Phone #
Dominic Groulx	Mechanical Engineering	Dominic.Groulx@Dal.ca 902-494-8835
Michael Lee Chair, FGS Faculty Council	Biomedical Engineering	Michael.Lee@Dal.ca 902-494-6734
Sarah Wells	Biomedical Engineering	Sarah.Wells@Dal.ca 902-494-2320
Janie Wilson	Biomedical Engineering	Janie.Wilson@Dal.ca 902-494-6950

APPENDIX B

Sample Forms for Graduate Studies

in

The Faculty of Engineering

Note that most forms that are necessary for graduate studies at Dalhousie can be found at <https://www.dal.ca/faculty/gradstudies/currentstudents/forms.html>. Students are encouraged to always consult the FGS website for up to date forms. The following forms are forms that are used internally within departments in the Faculty of Engineering for day-to-day administration of graduate programs.

Appendix B.1 Supervisory Committee Approval Form

Appendix B.2 Graduate Student Program Form

Appendix B.3 Graduate Student Program Update Form

Appendix B.4 Ph.D. Comprehensive Examination Results

Appendix B.5 Master's Thesis/Project Title Approval Form

Appendix B.6 Ph.D. Thesis Title Approval Form

Appendix B.7 Appointment for an Oral Examination (Master's)

Appendix B.8 Results of an Oral Examination Form (Master's)

Appendix B.1: Supervisory Committee Approval Form

Faculty of Engineering Graduate Studies and Research Supervisory Committee Approval Form

- All Masters' and Ph.D. Supervisory Committees must be appointed by the end of the first term of initial registration.
- Changes to an existing Supervisory Committee Form must be made on a Graduate Student Programme Update Form.

1) Student Information

Surname:	Given Name(s):	Student Number:
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Degree Programme (please circle) : M.A.Sc. M.Sc. M.Eng. M.A.Sc./M.U.R.P M.Eng./M.U.R.P Ph.D.
Home Department/School/Programme:
Area of Specialization:

2) Committee Approval

Name	Department Or Company/Organization	Signature
Supervisor:		
Co-Supervisor – <i>if applicable</i> :		
Internal Department:		
External to the Department:		
Additional Member (optional):		
Additional Member (optional):		

3) Approval of Department

Signature of Graduate Coordinator/Director/Department Head	Date:
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INSTRUCTIONS

1. It is the responsibility of the candidate to complete the form and obtain the necessary signatures. Incomplete forms will be returned to the Graduate Coordinator.
2. Submit completed form to the Faculty of Engineering, Graduate Studies and Research Office. The form must be signed by the Graduate Coordinator in your department/school **before** submitting it to the Graduate Studies Office. If the Graduate Coordinator is also the thesis/project supervisor, the Head/Director of the Department/School/Programme must sign it in his/her stead.
3. You will receive notification of approval/rejection.
4. Master's and Ph.D. Supervisory Committees must be appointed by the end of the first term of initial registration.
5. The minimum composition of the Supervisory Committee is a supervisor from the student's department, another faculty member from the student's department and a member from outside the student's department. Where co-supervision exists, there will be a minimum of four members on the Supervisory Committee.
 - A CV explaining the affiliations and qualifications of **any** member who is not a Dalhousie faculty member must accompany the Supervisory Committee form.
 - Please note that for the purpose of Supervisory Committees, Adjunct Professors are considered to be Department members, however, they may not be the sole supervisor.
 - For any member not at Dalhousie, please include a full mailing address as well as e-mail address.

GRADUATE STUDENT PROGRAMME FORM

STUDENT NAME: \						
ADDRESS:						
TELEPHONE:		E-MAIL:				
STUDENT NUMBER:		START DATE:				
YEARS OF PROGRAMME FEE REQUIREMENT: <input type="checkbox"/> 1 YEAR <input type="checkbox"/> 2 YEARS <input type="checkbox"/> 3 YEARS <input type="checkbox"/> PER COURSE FEE PROGRAMME						
DEGREE PROGRAMME:		DEPARTMENT/SCHOOL:				
REGISTRATION STATUS*: <input type="checkbox"/> FULL-TIME <input type="checkbox"/> PART-TIME		AREA OF SPECIALISATION:				
<small>* PHD STUDENTS MUST REGISTER FULL-TIME</small>						
TOTAL OF FULL-CREDIT CLASSES (WITH CREDIT VALUE) REQUIRED FOR DEGREE (EXCLUDING THESIS):						
REQUIRED COURSES FOR PROGRAMME (INDICATE ALL REQUIREMENTS; INCLUDE BOTH COURSE NUMBER AND CREDIT VALUE)						
SUBJECT CODE	COURSE NUMBER	# CREDIT HOURS		SUBJECT CODE	COURSE NUMBER	# CREDIT HOURS
CREDITS TO BE ADDED LATER:						
CREDITS AUDITED:						
ANCILLARY CREDITS (E.G. UNDERGRADUATE COURSES NOT REQUIRED TO COMPLETE THE PROGRAMME):						
ADDITIONAL REQUIREMENTS FOR DEGREE (GIVE CLASS NUMBER IF APPLICABLE):						
<input type="checkbox"/> THESIS:			<input type="checkbox"/> PROJECT:			
<input type="checkbox"/> PRACTICUM:			<input type="checkbox"/> LANGUAGE REQUIREMENT(S):			
OTHER REQUIREMENTS (PLEASE SPECIFY):						
NAME(S) OF SUPERVISOR(S):						
NAMES OF COMMITTEE MEMBERS (IF KNOWN):						
APPROVALS:						
STUDENT:				DATE:		
SUPERVISOR:				DATE:		
GRADUATE COORDINATOR:				DATE:		
FACULTY OF GRADUATE STUDIES:				DATE:		

GRADUATE STUDENT PROGRAM UPDATE FORM

NAME OF STUDENT:	PROGRAM:
STUDENT NUMBER:	PROGRAM START DATE:
DEPARTMENT / SCHOOL:	

CLASS DELETE:		CLASS ADD:	

b) CHANGE IN LANGUAGE REQUIREMENT:	DELETE:	ADD:
c) DATE LANGUAGE REQUIREMENT SATISFIED:		
d) NEW SUPERVISOR:		
e) SUPERVISING COMMITTEE ADDITION OR CHANGES:		
f) DOCTORAL PRELIMINARY EXAM (COMPREHENSIVE, QUALIFYING):	DATE TAKEN:	<input type="checkbox"/> PASSED
g) ADMISSION TO CANDIDACY/THESIS PROPOSAL (DOCTORAL/MASTERS):	DATE TAKEN:	<input type="checkbox"/> PASSED
h) CHANGE IN DEGREE PROGRAM:	CURRENT PROGRAM:	
	NEW PROGRAM:	
i) CHANGE IN STATUS TO:	<input type="checkbox"/> FULL-TIME	<input type="checkbox"/> PART-TIME

STUDENT — SIGNATURE	DATE
SUPERVISOR — SIGNATURE	DATE
GRADUATE COORDINATOR OR CHAIR/DIRECTOR — SIGNATURE	DATE

³²
FACULTY OF GRADUATE STUDIES APPROVAL:

SIGNATURE	DATE

Appendix B.4: PhD Comprehensive Exam Results

Faculty of Engineering Graduate Studies and Research

Ph.D. Comprehensive Examination Results

Surname:	Given Name(s):	Student Number:
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Home Department/School/Programme:

SUPERVISORY COMMITTEE APPROVAL

Name	Department Or Company/organization	Signature
Supervisor		

Pass: <input type="checkbox"/> Fail: <input type="checkbox"/> Re-Examination (Marginal Failure): <input type="checkbox"/>
Date Examinations Satisfactorily Completed:

Form and Number of Examinations Please include names of examiners not on the Supervisory Committee
COMMENTS (Optional)

Approval of The Home Department/ School/Programme:	Date:
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INSTRUCTIONS

1. It is the responsibility of the candidate to complete the form and obtain the necessary signatures. Incomplete forms will be returned to the Graduate Coordinator.
2. Submit completed form to the Faculty of Engineering, Graduate Studies and Research Office. The form must be signed by the Graduate Coordinator in your department/school **before** submitting it to the Graduate Studies Office. If the Graduate Coordinator is also the thesis/project supervisor, the Head/Director of the Department/School/Programme must sign it in his/her stead.
3. Students will receive official confirmation from the Faculty of Engineering Graduate Studies and Research Office that the comprehensive requirement has been met. Copies of this notification will be sent to the Faculty of Graduate Studies and to the department.
4. Ph.D. Comprehensive Exams are normally taken in the fourth term of study. The minimum composition of these in the Faculty of Engineering is two written examinations. Sometimes an oral examination is required in addition to, but never instead, of the written examinations.
5. Students must be given three months notice of the examinations.
6. Students receiving a recommendation of a “fail” shall be asked to withdraw from the program by the Faculty of Graduate Studies.
7. Re-examination of marginal students must be carried out within six months of the original examination. Only one re-write of each examination is permitted.

Appendix B.5: Master's Thesis/Project Title Approval Form

Faculty of Engineering Graduate Studies and Research

Master's Thesis/Project Title Approval Form

1) Student Information

Surname:	Given Name(s):	Student Number:
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Degree Programme (please circle) : M.A.Sc. M.Sc. M.Eng.
Home Department/School/Programme:

Title of Thesis (maximum 128 characters): PLEASE TYPE OR PRINT
Signature of Student:

2) Committee Approval

Name	Position	Signature
	Supervisor	
	Co-Supervisor (if applicable)	

3) Approval of Department

Signature of Graduate Coordinator/Director/Department Head	Date:
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INSTRUCTIONS

It is the responsibility of the candidate to complete the form and obtain the necessary signatures.

Submit completed form to the Departmental Office. The form must be signed by the Graduate Coordinator in your department. If the Graduate Coordinator is also the thesis/project supervisor, the Head/Director of the Department/School/Programme must sign it in his/her stead.

You will receive notification of approval/rejection.

The thesis/project title must be submitted to the Faculty of Engineering Graduate Studies Office at least two months prior to the defence/presentation.

The title must not exceed **128** characters.

Appendix B.6: PhD Thesis Title Approval Form

Faculty of Engineering Graduate Studies and Research

Ph.D. Thesis Title Approval Form

1) Student Information

Surname:	Given Name(s):	Student Number:
Home Department/School/Programme:		
Title of Thesis (maximum 128 characters): PLEASE TYPE OR PRINT		
Signature of Student:		Date:

2) Committee Approval

Name	Signature
Supervisor:	

3) Approval of Department

Graduate Coordinator:	Date:
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INSTRUCTIONS

1. It is the responsibility of the candidate to complete the form and obtain the necessary signatures.
2. Submit completed form to the Department. The form must be signed by the Graduate Coordinator in your department. If the Graduate Coordinator is on your Supervisory Committee, the department/school approval should come from the Department Head/Director even if the Department Head/Director is also on your committee.
3. You will receive notification of approval/rejection.
4. For Ph.D. Candidates, the approval of **all** members of the Supervisory Committee is required.
5. The thesis title must be submitted to the Department at least six months prior to the defence or by the end of the fourth year of study.
6. The title should not exceed **128** characters.

Appendix B.7: Appointment for an Oral Examination and Thesis Submission Form

Faculty of Engineering Graduate Studies and Research

Appointment for an Oral Examination (M.A.Sc./M.Sc./MEng.) & Thesis Submission Form

This form, appropriately completed, and **1 copy** of the thesis/project must be submitted to the Departmental Secretary or GPC **12 business days before** the intended presentation date. Full instructions are on the reverse.

1) Student Information:

Name:	Banner Number:
Department/School:	Degree:
Title of Thesis:	
Date of Exam:	Time of Exam:
Signature of Student:	

2) To be Checked & Signed by Supervisor:

I have read the thesis/project & find it suitable* for submission	<input type="checkbox"/> _____
I have read the thesis/project and find it unsuitable for submission	<input type="checkbox"/> _____
Signature of Supervisor	

*"Suitable for submission" means that the work has been reviewed in detail and, in the opinion of the supervisor and committee members, has reached the stage at which it is appropriate that it be put forward for examination. Agreement that a thesis may be submitted should not be viewed as a prejudgment on the outcome of the defence.

3) Supervisory Committee Approval:

Name	Department/Organization	Signature

4) To be filled out by Graduate Coordinator:

Please Indicate how & when Seminar Requirement was met:	
Name of Moderator:	
Approval of Home Department/School:	Date:

INSTRUCTIONS

It is the responsibility of the candidate to complete the form and obtain the necessary signatures.

No action will be taken towards scheduling an oral examination until this form has been completed and returned to the Departmental Graduate Secretary **along with 1 copy of the thesis or project at least twelve (12) business days before the intended date of defence.**

The student must distribute copies of the thesis/project to the supervisory committee at the same time.

The form must be signed by the Graduate Coordinator/Director in your department/school before submitting it to the Graduate Secretary. If the Graduate Coordinator is also the thesis/project supervisor, the Head of the Department/School/Programme must sign it in his/her stead.

The name of the Moderator **must** appear on this form. The Moderator may not be a member of your committee.

Failure to provide the name of the Moderator may result in your defence being postponed.

Appendix B.8: Results of an Oral Examination

Faculty of Engineering Graduate Studies and Research

Results of an Oral Examination (Master's)

1) Student Information

Surname:	Given Name(s):	Student ID:
Department/School/Programme:	Degree:	Date of Exam:
Title of Thesis/Project:		

2) Results (please check appropriate box):

- Pass
- Pass with modifications (Timeline: _____)
- re-examination
- Fail

3) Approval of Examining Committee

Supervisor: _____

Committee: _____

Moderator: _____

4) Departmental Use Only

Programme requirements met and thesis submitted on: _____

Subsequent term registration required: _____

Graduate Studies Administrator _____ Date _____

Degree to Be Awarded _____ Date of Convocation: _____

Approved (Coordinator): _____

INSTRUCTIONS

The result of an oral examination shall be one of the following:

PASS – Totally acceptable, the thesis/project is acceptable as it stands.

PASS WITH MODIFICATIONS – Acceptable after changes but the thesis/project requires some minor modifications. The corrected and approved thesis/project shall be submitted to the office of Graduate Studies and Research, Faculty of Engineering within the timeline as indicated by the examining committee. The list of required modifications shall be prepared by the Examining Committee and the moderator following the examination. Unless specified by the Examining Committee, the supervisor shall have the authority to approve the corrected thesis/project. If the required modifications are not completed within the timeline, the thesis shall be treated as one requiring a re-examination and the conditions governing re-examination shall apply.

RE-EXAMINATION – Unacceptable as submitted. The thesis/project requires major modification or corrections and requires re-examination. The re-examination must be conducted within twelve (12) months of the initial oral defence; otherwise, the thesis will be considered as a “fail”. Major modifications will be required when there is misinterpretation and/or misuse of the matter covered, omission of relevant materials, unfounded conclusions, illogicality of argument, etc. A student may or may not be required to carry out more experimental or analytical work.

FAIL – Thesis unacceptable: the thesis/project is failed.

2. This form must be returned to the Faculty of Engineering Graduate Studies and Research Office immediately following the defence.

3. The members of the Examining Committee shall sign the Signature Page of the thesis/project only for a “Pass” decision; otherwise, the Signature Page may only be signed when the necessary modifications have been made, reviewed and approved.

Form to be distributed to FGS & Department.

APPENDIX C: Guidelines for PhD Comprehensive Examinations

Faculty of Engineering Graduate Studies and Research

Guidelines for PhD Comprehensive Exams

These guidelines provide additional information regarding PhD Comprehensive Exam requirements of the Faculty of Engineering and give specific procedures for implementation of these requirements. A copy of the rules will be given to each PhD student shortly after registration.

Purpose of the Comprehensive Exams:

The purpose of the comprehensive exam is to test the candidate's understanding of the chosen field of study as a whole and evaluate his/her suitability to begin Ph.D. level thesis research. Failure to pass will result in academic withdrawal and may result in dismissal. However, on the recommendation of the department a student may be readmitted and permitted to repeat the examination (once) within twelve months of readmission.

General Description:

All candidates being considered for a doctoral degree in the Faculty of Engineering are required to complete the comprehensive exam requirements. These exams will take the form of *a minimum of two written and one oral examinations administered by the candidate's supervisory committee. The process is designed to examine, in depth, the candidate's knowledge and skills in both the general research area and the specific topics of the thesis being undertaken.* While there are distinct activities to be completed, the examination process will be initiated at the end of the first year in the program and *will be completed before the end of the second year.* Despite the obvious pressures of exams, the process is not intended to be adversarial but rather undertaken in open communication and interaction with the Supervisory Committee. As well, the exam process is believed to assist in the development of the candidate's skills in communication, research planning and defense as well as providing an indication of the expectations for the quality and sophistication of the thesis work and future assessments.

It is the candidate's responsibility to be aware of all rules and regulations as well as to be pro-active in ensuring that the requirements are met in a timely fashion. In compliance with FGS regulations (§ 7.3 of the Graduate Studies Calendar), comprehensive exams may only be taken after the completion of all required class work and *in no case should the examinations be held less than one year prior to the submission of a thesis for defence.*

General Procedures for PhD Students in the Faculty of Engineering

1) The Written Examinations

a) Setting of Written Exams by Supervisory Committee

Following a request by the candidate, the Supervisory Committee will hold an *in camera* discussion to evaluate the student's performance and set the parameters for the written exams. During this evaluation, the committee may consider the student's academic record including courses completed as part of the doctoral program, publication record, presentations made, and the needs of the proposed thesis. The appropriate area and scope of the written examinations is then selected and examiners identified. As well, the Committee should designate a member to coordinate the written exam process; this will normally be the candidate's direct supervisor.

b) Rules for the Written Exams

A minimum of two written exams must be completed. The exams should cover both the general field of the candidate's research as well as specific knowledge and skills required for the thesis topic. The Committee should set the area of examination, timing, resource material permitted and division of topic areas for each exam. Each exam may be a 'sit-down' exam that should be set to be completed in one sitting *not exceeding an 8 hour time limit* or a 'take-home' exam that should be completed in a continuous period *not exceeding 5 days*. The timing between each exam should be reasonable.

2) Notifying the Candidate of Written Exams

The Supervisory Committee will notify the candidate in writing of the scope and subject area of each exam as well as the timing and the names of the examiners. In accordance with the Faculty of Engineering Guidelines, the candidate must be given at least 3 months notice to prepare for the written and oral exams. While the exact questions can not be communicated to the candidate beforehand, the Committee should endeavor to provide a reasonable level of guidance for study and preparation.

A copy of the written notification should be given to the Department for filing in the student's records.

3) Oral Examination

a) General Guidelines

The oral exam will normally be completed within one month of completion of the written exams. In any case, within three months after successfully completing the written examinations, the Supervisory Committee will hold a second meeting with the candidate. The purpose of this meeting is to conduct an oral examination of the

candidate. A member from the Department who is not a member of the Supervisory Committee may be asked to chair the Oral Examination at the recommendation of the Graduate Coordinator, in consultation with the Supervisory Committee. As both written and oral exam must be completed by 2 years from the entrance to the Ph.D. program, the written exams must be completed by 21 months in order to have the oral exam completed within 2 years.

In preparation for this meeting, the candidate maybe required to submit a written proposal to the Committee for review prior to the meeting. This written proposal will often include:

- An introduction to the area or topic of research,
- A review of the problem or issue being investigated,
- An up-to-date literature review,
- Specific objectives of the research or project,
- Discussion of the methodology proposed to meet those objectives,
- Discussion of the current practice or knowledge and an indication of the difference or originality of the proposed research plan or project,
- Any preliminary research that has been completed and a plan of the proposed research to be completed.

b) Content and Format of the Oral Examination:

Questions for the candidate should focus on the specific thesis area but may be reasonably expanded into the general knowledge areas required for the research not included in the written examination.

To extend the evaluation of the student's knowledge and understanding of subject matter covered in the written examination. Emphasis may be placed on topics in which the student's responses are judged to be weak in the written exam.

To evaluate the student's ability to respond, in a scholarly and professional manner, to a variety of verbal questions.

Completion of the Comprehensive Exam

Immediately following the Oral Exam, the Supervisory Committee will hold an *in camera* meeting to assess the candidate's performance for the whole comprehensive exam process (i.e., written and oral examinations and thesis proposal). The Committee may again review the student's academic record and the results of the written and oral exams. The Committee will then complete the 'PhD Comprehensive Exam Results' form with the appropriate 'pass', 'fail' or 're-examination' recommendation. The completed form will then be forwarded to the Department for further processing.

APPENDIX D

Responsibilities and Rights

of

Graduate Students and Supervisors

Appendix D.1: Responsibilities of Supervisors

Appendix D.2: Responsibilities of Students

Appendix D.3: Rights of Supervisors

Appendix D.4: Rights of Students

Appendix D.5: Responsibilities of the Department

Appendix D.1: Responsibilities of Supervisors

When faculty members accept the supervision of graduate students, they assume several responsibilities:

- to provide reasonable access to students and to be available for consultation at relatively short notice;
- to be as helpful as possible in suggesting research topics and in assisting students to define their theses;
- to tell students approximately how long it will be before written work, such as drafts of chapters, can be returned with comments;
- to be thorough in their examination of thesis chapters, supplying, where appropriate, detailed comments on such matters as literary form, structure, use of evidence, relation of the thesis to published work on the subject, footnoting, and bibliographical techniques, and making constructive suggestions for rewriting and improving the draft;
- to indicate clearly when a draft is in a satisfactory final form or, if it is clear to the supervisor that the thesis cannot be successfully completed, to advise the student accordingly;
- to know the departmental and University regulations and standards to which the writer of a thesis is required to conform, and to make sure that the student is aware of them;
- to continue supervision when on leave, possibly with arrangements also being made for members of the supervisory committee to assist the student for the leave period;
- to advise and help the student to approach other faculty members for assistance with specific problems or even to request the reading of a chapter or section of the thesis;
- to see that all ethics and animal care approvals as appropriate, are secured.

Appendix D.2: Responsibilities of Students

When graduate students undertake the writing of a thesis, they assume several responsibilities:

- to choose a topic (often with the supervisor's help) and to produce a thesis that is essentially their own work;
- to produce a thesis which meets the standards of scholarship required by the University and the department, including demonstration of their capacity for independent scholarship and research in their field;
- to acknowledge direct assistance or borrowed material from other scholars or researchers;
- to realize that the supervisor has undergraduate or other duties which may at times delay the student's access to the supervisor at short notice;
- to give serious and considered attention to advice and direction from the supervisor;
- to submit their work to the judgment of the department and to abide by its decision when any rights of appeal, if exercised, have been exhausted;
- to know the departmental and University regulations and standards to which the writer of a thesis is required to conform;
- to comply with all ethics and animal care requirements.

Appendix D.3: Rights of Supervisors

Supervisors have the following rights:

- to expect students to give serious and considered attention to their advice concerning what they regard as essential changes in the thesis;
- to terminate supervision and advise the student to find another supervisor if the student does not heed advice and ignores recommendations for changes in the thesis, or if the student is not putting forth a reasonable effort;
- to have their thesis supervision properly credited by the department as an intrinsic part of their workload so that, in the assignment of duties, they are not overburdened to the point of having their effectiveness impaired as supervisors;
- to have the thesis-writer acknowledge, by footnoting, all portions of the supervisor's own research over which the supervisor wants to retain future rights of authorship;
- to have thesis-writers give permission for the results of their research to be used for the benefit of a larger project when they are working as assistants with their supervisor on research that is part of such a project. this is always with the understanding that students will retain scholarly credit for their own work and be given acknowledgment of their contribution to the larger project.

Appendix D.4: Rights of Students

Students have the following rights:

- to have a clear understanding of what is expected in thesis writing (expected length, acceptable methodology, validity of topic, notification of progress);
- to expect help from their supervisor in establishing a feasible topic and in solving problems and assessing progress as the thesis is being written;
- to receive a fair assessment of the completed thesis and explanations of negative criticism;
- to be allowed to have a new supervisor when they can offer convincing reasons to the department for the change and the change can be reasonably accommodated by the department;
- to be protected from exploitation by their supervisor or other faculty members if the latter should :
- intrude upon the student's right of authorship or fail to give a student authorship credit for team research (where applicable, the department's protocols on authorship should be provided to students before they embark on research), or
- divert the student's efforts from the timely completion of the thesis;
- to submit a thesis even if the supervisor is not satisfied, although such action should be taken only in extreme cases and after full consultation with the department.

Appendix D.5: Responsibilities of the Department

Departments have certain responsibilities in supporting and maintaining their graduate programs:

- to provide necessary facilities and supervision for each student admitted, and not to accept more candidates than can be offered effective supervision (Therefore departments should consider carefully such matters as faculty retirements, sabbatical leaves, teaching loads, and library resources before admitting each student with a declared research interest. When, as is often the case in many disciplines, applicants are unable to choose a field of research until they have had some experience in graduate study or in a particular department, the department should still regulate admissions according to the number of faculty members available for supervision);
- to uphold a high academic standard for theses;
- to provide adequate supervision at all times, so that, when a supervisor leaves the University for another permanent position, substitute arrangements are made as soon as possible;
- to allow students to change supervisors if their research interests shift or develop in a new direction and a change of supervisor will not deprive them of financial support and if the change can be reasonably accommodated by the department;
- to provide procedures which assist and encourage students to complete the thesis, such as early review and approval of topic and methodology, guidelines on access and appeals, oversight of the students' schedule, and a clearly stated system of thesis review and evaluation;
- to regard supervision of graduate students as a major consideration in making replacement appointments for faculty;
- to encourage students to give papers as they proceed, so that they can test their ideas on a wider audience than the supervisory committee;
- to ensure that the graduate coordinator acts as a general overseer of students' progress; to instruct all students (or see that they attend Faculty-level workshops) on research ethics; to explain to students the University's policies on intellectual property rights.