

Graduate Student Handbook



UNIVERSITY
OF MANITOBA

Department of Electrical and Computer Engineering

University of Manitoba

A new version of the Graduate Student Handbook from Electrical and Computer Engineering is being introduced in September, 2007. This booklet contains most, but not all, of the information a you'll need as a graduate student here at ECE. This booklet is not meant to replace, but rather supplement, the information found on the Faculty of Graduate Studies web page. Please read this carefully and if you find any omission or errors, or have any suggestions please contact Prof Doug Thomason or Amy Dario.

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TABLE OF CONTENTS

1.	Introduction	1
2.	University Offices	1
3.	Guidelines & General Information	1
4.	Grade Point Average.....	2
5.	Degrees Offered.....	3
5.1	Master of Engineering (M.Eng).....	3
5.2	Master of Science (M.Sc.)	6
5.3	Doctor of Philosophy (Ph.D.)	10
6.	Continuation in a M.Sc. or Ph.D. Program	17
7.	Pre-Master's Program	18
8.	Program Changes	18
9.	Advisory Committee	19
10.	Program Extensions.....	20
11.	Graduate Seminars	20
12.	Financial Assistance	20
13.	Responsibilities	21
14.	Annual Reports	22
15.	GradCon.....	23
16.	Plagiarism	23
17.	Fraud.....	24
18.	Need Help	24
19.	Final Remarks	28

1. INTRODUCTION

WELCOME, to the University of Manitoba, Department of Electrical & Computer Engineering! You have worked hard to arrive at this point and we want to make sure you are successful during your stay with us.

This handbook was constructed to assist you by providing information relevant to you as a Graduate Student here at the University of Manitoba in the department Electrical & Computer Engineering. Throughout this handbook you will find information concerning university and departmental policies regarding our degree programs.

2. UNIVERSITY OFFICES

a. Faculty of Graduate Studies (FGS)

http://www.umanitoba.ca/graduate_studies/

i. Thesis Guidelines & Information

http://umanitoba.ca/faculties/graduate_studies/thesis/250.htm

1. Master of Engineering (M.E.)
2. Master of Science (M.Sc.)
3. Doctor of Philosophy (Ph.D.)

ii. Forms: Thesis, Committee, Candidacy, Leave of Absence, Part-time Status, etc.

http://www.umanitoba.ca/faculties/graduate_studies/forms/index.html

iii. Graduate Calendar http://umanitoba.ca/faculties/graduate_studies/deadlines/index.html

- Deadlines for filing Master & Ph.D. paperwork (e.g. committee form, thesis title, etc.)

b. Registrar's Office

<http://umanitoba.ca/registrar/>

- i. Pay fees at this office: Tuition, late fees,
- ii. Deadlines & Calendar: last day to register, last day to drop, university holidays
- iii. Pick-up your Student ID Card

3. GUIDELINES & GENERAL INFORMATION

The Chair of Graduate Studies, Professor Douglas Thomson, and the Graduate Student Advisor, Ms. Amy Dario, are responsible for ensuring that the administrative details pertaining to your program are handled properly. They are here and available to assist you throughout the duration of your program.

IMPORTANT: It is, however, your responsibility to ensure that all of the requirements of your particular degree program are met within the proper timeframe. Also, please make sure you send us copies of papers you send to FGS or elsewhere concerning your program. Should a complication arise it is important that we have all your paperwork on file so that we will be able to assist you.

The graduate program regulations, for the Department of Electrical & Computer Engineering, can be found in the UofM's Graduate Calendar in the sections referred to below. The UofM's Graduate Calendar can be found at http://umanitoba.ca/faculties/graduate_studies/media/Grad_Cal_0910.pdf.

- a. General Info – Preface: Faculty of Graduate Studies and Research (FGSR)
- b. FGS General Regulations – Sections 3 – 5
 - i. SECTION 3: Grades and Grade Point Average Calculation
 - ii. SECTION 4: Academic Evaluation
 - iii. SECTION 5: Appeals of Grades
- c. Section 25: Electrical and Computer Engineering – This section covers regulations specific to ECE Program including Program Requirements

In particular, your responsibilities are outlined in the preface to FGSR, *Responsibilities Related to Graduate Students* as follows:

Graduate students are ultimately responsible for their own programs. They are expected to read the calendar and any other relevant documents (i.e. this booklet) to become familiar with (and comply with) all regulations and deadlines relating to their programs.

It is left to individual departments to supplement and interpret these regulations wherever flexibility is permitted. This booklet outlines the policies and procedures now in effect in the Department of Electrical and Computer Engineering.

4. GRADE POINT AVERAGE (GPA)

- a. Minimum Admissions Standards

The minimum admission standard to be eligible for consideration as a Graduate Student in Electrical and Computer Engineering is a grade point average (GPA) of 3.00, or equivalent (as determined by the Faculty of Graduate Studies (FGS)).

- b. How FGS calculates GPA

GPA is based on the last 60 credit hours for Canadian and U.S. Students and the last two full years of study for International Students. These could include technical elective courses taken at or above the 3000 level in a relevant degree program. As "Complementary Studies Electives" are not required courses, these courses are not counted towards the entrance GPA.

- c. UofM Students with GPAs less than 3.00

Students may take a maximum of two (2) extra courses at, or above the 3000 level from their undergraduate degree program.

- i. These could include technical electives, but not complementary studies electives. These two courses must be new courses, not repeated courses.
- ii. These courses may be taken as a **Special Student in Extended Education**. Please contact the Extended Education Advisor for details. <http://umanitoba.ca/coned/>
- iii. If the new grades result in a revised GPA of 3.00 or higher, then the student may then apply for admission into the Faculty of Graduate Studies (FGS). However, having an eligible GPA does not guarantee acceptance into a Graduate Program.

5. DEGREES OFFERED

The Department of Electrical and Computer Engineering (ECE) offers the following graduate degrees:

- Master of Engineering in ECE (M.Eng.) Section 5.1
- Master of Science in ECE (M.Sc.) Section 5.2
- Doctor of Philosophy in ECE (Ph.D) Section 5.3

The basic description and requirements for each of these programs are summarized below.

5.1 Master of Engineering (M.Eng.)

Expected time to Graduation - 2 years.

The M.Eng. program is designed to satisfy the particular needs of students and practicing engineers wishing to extend their studies on a broad basis of coursework and an engineering project.

ADMISSION REQUIREMENTS

- 1) The student must hold a B.Sc. degree in Electrical or Computer Engineering from a recognized university
- 2) Grade Point Average (GPA) of at least 3.00
 - a. Canadian or U.S. –last 60 credit hours of study
 - b. International – the last two (2) full years of study

NOTE: Students who have completed a Qualifying Program at the University of Manitoba, with a GPA of at least 3.00, are also eligible for application.

NOTE: Students who have completed pre-Master's or Qualifying programs at other recognized universities may be recommended for admission at the discretion of the ECE Graduate Studies Committee.

PROGRAM REQUIREMENTS

A minimum of **24 credit hours** of advisor-approved coursework is required which is comprised of the following:

- A minimum of nine credit hours at the 7000 level or above from Electrical and Computer Engineering
- A maximum of nine credit hours of elective courses from Electrical and Computer Engineering at the 4000 level
- A maximum of 12 credit hours from other departments at the 3000 level or above.
- The student is required to complete an advisor-approved engineering project (see below). The effort involved in this project should be at least the equivalent of six (6) credit hours of coursework.

NOTE: In exceptional cases, a student may be allowed to take 2000 level courses from another department (anatomy, geology, etc.) if **pre-approved**

- a. by the Advisor

- b. **AND** the ECE Graduate Studies Committee

PERFORMANCE

Coursework

Continuation in the M.Eng program requires the following:

- A minimum GPA of 3.00, with no grade less than "C+", must be maintained to continue in the M.Eng program.
- Students who fail to meet this standing may be allowed to continue in the Master's program if departmental remedial action is recommended and is approved by the Departmental Graduate Studies Committee and the Faculty of Graduate Studies.
- Students with failing grades in three (3) credit hours may be allowed to repeat the course or to take an equivalent substitute course.

In this event the higher grade will be used to compute the student's GPA. If a grade of less than "C+" is obtained again the student will be required to withdraw.

- Students with failing grades (grade "C" or less) in six (6) hours of credit or more will be required to withdraw from the Faculty.
- Students are allowed to remove deficiencies in grades, as explained above only once (i.e. for only one course, and only once).
- It is expected that all course work is completed within the term in which it was started.

Project

The student's performance is evaluated by the project advisor.

- Annual Progress Report (APR) – filled out by your Advisor annually
- APRs are filed with the Faculty of Graduate Studies (FGS) and copy is kept in the Department files
- APRs are signed and dated by both the advisor and the student.
- If performance is deemed to be "unsatisfactory", action will be required which may include some or all of the following:
 - Meeting with Department Head – The student may be required to meet with the Department Head. If the Department Head confirms that performance is "unsatisfactory", then the student will be required to withdraw from the program
 - Timeline of Required Actions – A Timeline of Required Actions or tasks may be put forward by the advisor, head of the department and/or the ECE Graduate Studies Committee. If the student fails to meet any of the tasks in the allotted time, the student will be required to withdraw from the program.
- Appeals – The student may appeal the Department's decision to the Dean of Graduate Studies.

THE PROJECT

Proposal

- Proposal Format – The student shall submit a one-page proposal to their Advisor which outlines the nature and scope of the project to be undertaken.
- Copy – A copy of the proposal will be filed with the ECE departmental office.
- Submission Time – The proposal must be submitted within 13 months of initial registration in the Master's Program.
- Acceptance – If the proposal is "Satisfactory", the Advisor will recommend its acceptance to the ECE Graduate Studies Committee who will in-turn submit for acceptance to the Head of the Department.

M.Eng. Project (6 credit hours)

- Written Style: The project report shall be written in a style as practiced in the Department.
- Distribution: The student should submit the project report to all Examining Committee Members **at least three (3) weeks prior** to the oral examination.
- Oral Exam: In the oral examination, the student presents and defends the findings presented in the project report.
 - The oral examination is chaired by the student's advisor.
 - The examining committee will consist of
 - the advisor
 - a second ECE faculty
 - one other University of Manitoba faculty member (normally from another department) or a member from the professional community who has been approved by the ECE Graduate Studies Committee and Faculty of Graduate Studies
- Presentation Length: The student is expected to present a report in a 30 to 35 minute period, after which the chair invites questions from all members of the examining committee and then the audience. The entire proceedings should normally not exceed 90 minutes in duration.
- Closed Oral Examinations: Will not be allowed unless approved by the Dean of the Faculty of Graduate Studies.
- Time of Presentation: Presentations must be given during normal business hours.

5.2 Master of Science in ECE (M.Sc.)

Expected time to Graduation - 2 years

ADMISSION REQUIREMENTS

- 1) The student must hold a B.Sc. degree in Electrical or Computer Engineering from a recognized university
- 2) Grade Point Average (GPA) of at least 3.00
 - c. Canadian or U.S. –last 60 credit hours of study
 - d. International – the last two (2) full years of study

NOTE: Students who have completed a Qualifying Program at the University of Manitoba, with a GPA of at least 3.00, are also eligible for application.

NOTE: Students who have completed pre-Master's or Qualifying programs at other recognized universities may be recommended for admission at the discretion of the ECE Graduate Studies Committee.

PROGRAM REQUIREMENTS

The M.Sc. shall consist of a minimum of **18 credit hours** of advisor-approved course work comprised

- A minimum of 12 credit hours at or above the 7000 level
- Six (6) credit hours at or above the 3000 level from other departments or 4000 level elective courses from this Department.
- At least 12 of the 18 credit hours must be from ECE.
- A Master of Science. thesis is required
- All fulltime M.Sc. students are required to present a paper, at least once during their program, at the Department's annual graduate student conference (GRADCON), as outlined at the website www.ee.umanitoba.ca/~gradcon/

PERFORMANCE

Coursework

Continuation in the M.Sc. program requires the following:

- A minimum GPA of 3.00, with no grade less than "C+", must be maintained to continue in the M.Sc. program.
- Students who fail to meet this standing may be allowed to continue in the Master's program if departmental remedial action is recommended by
 - the student's Advisor
 - approved by the Departmental Graduate Studies Committee
 - approved by the Faculty of Graduate Studies.

- Students with failing grades in three (3) credit hours may be allowed to repeat the course or to take an equivalent substitute course.

In this event the higher grade will be used to compute the student's GPA. If a grade of less than "C+" is obtained again the student will be required to withdraw.

- Students with failing grades (grade "C" or less) in six (6) hours of credit or more will be required to withdraw from the program.
- Students are allowed to remove deficiencies in grades, as explained above only once (i.e. for only one course, and only once).
- It is expected that all course work is completed within the term in which it was started.

Research

The student's performance is evaluated by the advisor.

- Annual Progress Report (APR) – filled out by your Advisor annually
- APRs are filed with the Faculty of Graduate Studies (FGS) and copy is kept in the Department files
- APRs are signed and dated by both the advisor and the student.
- If performance is deemed to be "unsatisfactory", action will be required which may include some or all of the following:
 - Meeting with Department Head – The student may be required to meet with the Department Head. If the Department Head confirms that performance is "unsatisfactory", then the student will be required to withdraw from the program
 - Timeline of Required Actions – A Timeline of Required Actions or tasks may be put forward by the advisor, head of the department and/or the ECE Graduate Studies Committee. If the student fails to meet any of the tasks in the allotted time, the student will be required to withdraw from the program.
- Appeals – The student may appeal the Department's decision to the Dean of Graduate Studies.

MASTER OF SCIENCE THESIS

Proposal

- Proposal Format – The student shall submit a one (1)-page proposal to their Advisor which outlines the nature and scope of the project to be undertaken.
- Copy – A copy of the proposal will be filed with the ECE departmental office.
- Submission Time – The proposal must be submitted within 13 months of initial registration in the M.Sc. Program.

- Acceptance – If the proposal is "Satisfactory", the Advisor will recommend its acceptance to the ECE Graduate Studies Committee who will in-turn submit for acceptance to the Head of the Department.

The Thesis

- Written Style – The thesis shall be written in a style as practiced in the Department and recommended by the advisor.
- Submission – The student should submit the thesis to all examining committee members at least four (4) weeks prior to the oral examination in which the student presents and defends the findings presented in the thesis.
- Examining Committee – The student’s Advisor will recommend a suggested thesis/practicum examining committee to the Department Head for approval
- Reporting the Committee Selection – Once approved, the committee must be reported to the Faculty of Graduate Studies **PRIOR** to the oral examination. This is done by filling in the “**Master’s Thesis/practicum Title and Appointment of Examiners Form**” found on the FGS web site under "Forms"
- Oral Examination – Chaired by the student’s Advisor.
- Examining Committee – Minimum of three (3) members
 - 1) The student’s Advisor
 - 2) A second ECE faculty member
 - 3) A third faculty member normally either from another department at this university or from a department at another university or member from the professional whom the Advisor and Department Head deem qualified.

NOTE: The Internal and External examiner’s must be members of the Faculty of Graduate Studies.

NOTE: At least one member of the examining committee must be a full time faculty member of the Electrical and Computer Engineering Department.

Oral Presentation

- Presentation Length – The student is expected to present the report in a 30 to 35 minute period, after which the chair invites questions from all members of the examining committee and then the audience.
- Length of Presentation & Q& A – The entire proceedings will normally not exceed 90 minutes.
- Closed Oral Examinations -- Not allowed unless approved by the Dean of the Faculty of Graduate Studies.
- Oral Exam Scheduling – An oral must be held during regular business hours. If an Oral must be scheduled outside regular business hours it must be approved by the Advisor and the Chair of Graduate Studies
- Copies of Thesis – Provide two (2) unbound, corrected copies of the thesis/practicum to the Faculty of Graduate Studies.
 - Both copies must be single-sided

- One copy may include coloured photographs, graphs and tables
- second copy must be black & white for the production of microfiche
- It is the student's responsibility to provide copies for their department and for personal distribution.

Submitting Your Thesis to FGS

Along with the two copies of the thesis/practicum, please ensure the following must be submitted to the Graduate Studies Office.

- **Master's Thesis/Practicum Final Report**

After successfully defending and completing your thesis each person on your committee will sign this form.

Submit the original to FGS; a copy goes to the ECE Graduate Advisor for your files.

- **Thesis Release Form (THESIS / PRACTICUM COPYRIGHT LICENSE)**

This is a copyright license form that you are required to complete and submit along with your thesis.

- **PERMISSION TO USE COPYRIGHTED MATERIAL Form** (if applicable)

If you have used copyrighted material in your Thesis/Practicum please fill-in this form and submit it with your thesis

NOTE: The Faculty of Graduate Studies does **NOT PROVIDE EXTENSIONS** for thesis/practicum submissions beyond the set graduation deadlines. All Deadlines may be found on Graduate Calendar found at www.umanitoba.ca/graduate_studies/

NOTE: All forms may be downloaded from the Faculty of Graduate Studies website: umanitoba.ca/faculties/graduate_studies/forms/index.html

5.3 Doctor of Philosophy in ECE (Ph.D)

Expected time to Graduation – 3.5 years.

ADMISSION REQUIREMENTS

- 1) The student must hold a M.Sc. degree in Electrical or Computer Engineering from a recognized university
- 2) Provisional acceptance of students nearing completion of the M.Sc. degree in Electrical or Computer Engineering may be considered, but must be approved by the ECE graduate studies committee and the Faculty of Graduate Studies.
- 3) In exceptional cases, a transfer into the Ph.D. program from the M.Sc. program may be recommended for students holding a B.Sc. degree in Electrical or Computer Engineering, provided the following conditions are met:
 - a) The transfer occurs within 12-months of initial registration in the M.Sc. program
 - b) The student has successfully completed at least nine (9) credit hours of approved course work at or above the 7000 level, all of which are ECE courses
 - c) The transfer is recommended by the ECE Graduate Studies Committee. If the transfer is approved, the time spent in the Master's program will normally be counted as time in the Ph.D. program.

NOTE: Preliminary admission into a Master's program may be recommended by the advisor if there is an intention to review the student for a possible transfer to the Ph.D. program. However, this must be **indicated on the application form at the time of admission**. If this does not occur, the student will be required to pay both M.Sc. and Ph.D. program fees.

- 4) The M.Sc. fees are not transferable to the Ph.D. program.

ADVISORY COMMITTEE

- The Advisory Committee will be established by the student's Advisor in consultation with the Head of the Department and/or the ECE Graduate Studies Committee within one (1) month of admission of a student into the Ph.D. program.
- The Departmental Graduate Studies Committee does not assume any duties that are the responsibility of the Advisory Committee.
- The Advisory Committee must approve the plan of coursework as submitted by the advisor
- All course and program changes initiated by the advisor must be approved by the Advisory Committee.
- The Advisory Committee must consist of a minimum of three (3) members
 - The student's Advisor (or co-advisors in the case of an adjunct faculty co-advisor)

- A member of the Department of Electrical and Computer Engineering, which may be an adjunct faculty, but is not the advisor or co-advisor.
- A faculty member, within the University of Manitoba, from another department, who is a member of the Faculty of Graduate Studies. **This may not be an adjunct faculty.**
- The Advisory Committee Qualifications & Duties
 - Membership – membership of the Advisory Committee, and any changes to the Committee, must be must be approved by the Dean of Graduate Studies
 - Chair – The Advisory Committee is chaired by the Advisor.
In the event of co-supervision, the chair will be that supervisor who is a full-time, permanent, tenure-track member of the ECE academic staff.
 - Required Member – At least one full-time ECE faculty member must be on the committee
 - Possible Outside Member – One guest member may be a person who has expertise in a related discipline but is not a member of the Faculty of Graduate Studies.
 - Meetings with the Student
 - The committee is required to meet annually to review the student’s progress and to report this progress to the Faculty of Graduate Studies
 - In ADDITION, the committee should meet with the student periodically. These additional periodic meeting do not include the REQUIRED annual meetings
 - Reports of the each student's progress are sent to the ECE Department Head

PROGRAM REQUIREMENTS

In keeping with the minimum course requirements of the Faculty of Graduate Studies (FGS) please apply the program requirements listed in Section 25: Electrical and Computer Engineering, in the FGS Graduate Calendar

http://www.umanitoba.ca/faculties/graduate_studies/media/UofM_Grad_Cal_0910-final-1.pdf

- Students who hold an M.Sc. degree in Electrical or Computer Engineering and who have been admitted directly into the Ph.D. program,
 - minimum of 12 credit hours of Advisory Committee-approved course work is required at, or above the 7000 level.
 - at least 9 of the 12 credit hours must be from the Electrical and Computer Engineering.
- Students who hold a B.Sc. degree in Electrical or Computer Engineering and who are recommended for transfer into the Ph.D. program from the M.Sc. program in Electrical and Computer Engineering at this university
 - A minimum of 24 credit hours of Advisory Committee-approved course work is required, of which 18 credit hours must be at or above the 7000 level
 - The balance of 6 credit hours may be at or above the 3000 level from other departments or 4000 level elective courses from this department.

- At least 15 of the 24 credit hours must be from this Department.
- Credit may be given for approved course work completed at the M.Sc. level.
- All other categories of students
 - minimum of 18 credit hours of Advisory Committee-approved course work is required, of which, 12 credit hours must be at or above the 7000 level
 - the balance of 6 credit hours may be at or above the 3000 level from other departments or 4000 level elective courses from this department.
 - at least 12 of the 18 credit hours must be from this Department.

- **Residence Requirement**

Two residence periods at the University of Manitoba devoted to full-time postgraduate study, subsequent to admission into the Ph.D. Program, are required of all students. (For the purposes of the Residence Requirement one residence period is Fall Term, Winter Term or Summer 1 and Summer 2 terms combined.) The student shall be geographically available to visit the campus regularly during these residence periods.

NOTE: The purpose of the residency is to ensure that Ph.D. students have an opportunity to work within the stimulating environment provided by contact with a cohort of dedicated peers and professors in a chosen field of study, and also to enhance the breadth and depth of their graduate experience by being part of a broader university culture.

NOTE: Students may not retain the status of full-time while employed fulltime without prior permission of the Dean of the Faculty of Graduate Studies and recommendation from the major department.

- **Lapse of Credit of Courses**

Courses completed more than eight years prior to the date of awarding of a degree may not normally be used for credit toward that degree.

- **The Thesis**

- For all students, a Ph.D. thesis, which is based on original research work normally carried out at this university, **is required**

- **Annual Presentation**

- **All full-time Ph.D.** students are also required to present a paper every year of their program at the Department's annual graduate student conference, as outlined on www.ee.umanitoba.ca/~gradcon/.

PERFORMANCE IN COURSEWORK

A minimum GPA of 3.00, with no grade less than "C+", must be maintained to continue in the Ph.D. program.

- **Grades Below "C+"**

Students who fail to meet this standing may be allowed to continue in the Master's program if departmental remedial action is recommended by the student's advisory committee and is approved by the Departmental Graduate Studies Committee and the Faculty of Graduate Studies.

- Students with failing grades in three (3) credit hours
 - allowed to repeat the course or to take an equivalent substitute course
 - the higher grade will be used to compute the student's GPA
 - If a grade of less than "C+" is obtained again the student will be required to withdraw.
- Students with failing grades (grade "C" or less) in six (6) hours of credit or more will be required to withdraw from the Faculty.

Students are allowed to remove deficiencies in grades, as explained above, only once (i.e. for only one course, and only once). It is expected that all course work is completed within the term in which it was started.

PERFORMANCE IN RESEARCH

- Research is evaluated through an annual meeting of the Advisory Committee with the student.
- A decision regarding continuation is conveyed to the Faculty of Graduate Studies using the "Ph.D. Annual Progress Report" http://umanitoba.ca/faculties/graduate_studies/forms/index.html
- Members of the Advisory Committee and the student are required to sign and date this form.
- If performance is deemed to be unsatisfactory, action will be required which may include some or all of the following:
 - A timeline of required actions or tasks may be put forward by the advisor, head of the department and/or the ECE graduate studies committee. If the student fails to meet any of the tasks in the allotted time, the student will be required to withdraw from the program.
 - The student may be required to meet with the Department Head and/or the Chair of the ECE Graduate Studies Committee. If it is confirmed that the student performance is unsatisfactory, then the student will be required to withdraw from the Faculty of Graduate Studies.
 - Students who receive a rating of "unsatisfactory" will be required to withdraw from the Faculty of Graduate Studies.

CANDIDACY EXAMINATION & THESIS PROPOSAL

The purpose of the Candidacy examination and thesis proposal defence is to ascertain if the student has sufficient knowledge in the chosen area of research, to assess the quality of the work done by the

student, and to examine the student's future research plan and direction through examination of the research proposal.

TIMEFRAME: Normally, this examination must take place within 24-months of initial registration in the Ph.D. program

- The student will submit a written report (usually ~ 40 pages).
- It is the Advisor's responsibility to ensure that all members of the Advisory Committee have at least three (3) weeks to study the report before attending the oral presentation by the student.
- This presentation is chaired by the Advisor .
- The student is expected to present the report in approximately 30-minutes in length, after which the Chair (Advisor) invites questions from all members of the Examining Committee and then the audience.
- The entire proceedings, from student's oral through Q&A, normally does not exceed 90-minutes.
- The decision of the Examiners will fall into one of two (2) categories:
 - The student PASSES the candidacy examination and thesis proposal with or without any revisions in the student's research plan.
 - The student FAILS the candidacy examination and thesis proposal defence.
 - No student may sit for the "examination and defence" more than twice.
 - Any student who fails the examination twice will be required to withdraw from the Faculty of Graduate Studies.
 - The interval between the two (2) examinations shall not be less than six (6) months.
- On successful completion of the candidacy examination the student will be considered a Candidate for the Ph.D. degree.

PH.D. THESIS REGULATIONS

- The Candidacy Examination/Thesis Proposal defense constitutes the thesis proposal requirement for a Ph.D. degree.
- The PROPOSAL must be approved by the Advisory Committee on the Ph.D. Thesis Proposal Approval Form and sent to the Faculty of Graduate Studies.
http://umanitoba.ca/faculties/graduate_studies/forms/index.html
- Thesis Formatting & Style -- The thesis shall be written in a style as practiced in the Department and recommended by the advisor.
- The student shall submit copies of the advisor-approved thesis and a completed form PhD Thesis Title & Appointment of Examiners Form to the Faculty of Graduate Studies at least six (6) weeks prior to the conduct of the oral defence.
http://umanitoba.ca/faculties/graduate_studies/forms/index.html

- A sufficient number of copies must be submitted for distribution to each member of the examining committee.
- The student is required to present the results and report of the thesis in approximately 30 minutes after which the Chair invites questions from all members of the Examining Committee as provided for in the "**Guidelines for the Scheduling and Conduct of the Ph.D. Oral Examination**" by the Faculty of Graduate Studies. (these Guidelines will be provided to the Advisor and Committee members three (3) days prior to the Examination) http://umanitoba.ca/faculties/graduate_studies/thesis/phdoegi.html
 - The entire proceedings normally does not exceed 120 minutes
- Closed Examinations -- will not be allowed unless approved by the Dean of the Faculty of Graduate Studies.
- Examinations – must be held during regular business hours
- The final examination for the Ph.D. degree shall be carried out in accordance with the regulations of the Faculty of Graduate Studies.

THESIS EXAMINERS

- The student's advisor, in consultation with the advisory committee, will forward to the ECE Department Head and/or the Chair of the ECE Graduate Studies Committee the list of Examiners for approval.
- The ECE Department Head and/or the Chair of the ECE Graduate Studies Committee then makes a recommendation(s) to the Dean of Graduate Studies who then issues the formal invitation to the External Examiner.
- The Examining Committee must include
 - At least three (3) members of the University of Manitoba academic staff, normally the same members as that of the candidate's advisory committee
- Presence at the Oral Examination
 - All Internal Examiners must be present at the oral examination.
 - The presence of the External Examiner is not mandatory, but is strongly encouraged.
- At a minimum, the Thesis Examiners must include:
 - The student's Advisor
 - A second (not the advisor) faculty member from the ECE department
 - One (1) other faculty member either from another department at this University or an approved member from the Professional Community
 - At least one member of the examining committee must be a **full-time** faculty member of the Electrical and Computer Engineering Department.
- The choice of an External Examiner is made by the Advisory Committee (not the student) and recommended by the ECE Department Head to the Dean of the Faculty of Graduate Studies who issues the formal invitation to the External Examiner.

The External Examiner

The External Examiner must be a distinguished scholar with particular experience in the field of the thesis research and from outside the University of Manitoba.

- should hold a Ph.D.
- should hold an appointment with a recognized university or be a recognized scholar in their field
- must have no affiliation with the student or the advisor (i.e. has not collaborated or published anything within at least the last 5-years)
- must be considered at "arm's length" to the department and the University of Manitoba.

While the definition of "arm's length" is left to the discretion of the department, be advised that justification may be required by the Faculty of Graduate Studies for this selection.

THESIS SUBMISSION

- The student must provide **two (2)**, unbound and corrected copies of the thesis/practicum, to the Faculty of Graduate Studies.
- At least one (1) of the copies must be single-sided.
Coloured photographs, graphs and tables are acceptable; however one single-sided copy should be black and white for the production of microfiche.
- It is the student's responsibility to provide copies for their Department and for personal distribution.
- Along with the two (2) copies of the thesis/practicum, please ensure the following must be submitted to the Graduate Studies Office.
 - 1) **Thesis/Practicum Final Release Form** – This form is signed by the student's committee once the student has successfully defended and completed his/her thesis. Typically this form is supplied by the Faculty of Graduate Studies and is given to the Chair of the Ph.D. oral examination.
 - 2) **Thesis Release Form** – The student is required to complete and submit this form with his/her thesis upon submission
 - 3) **Permission to Use Copyrighted Material Form** (*if applicable*)
 - 4) **Ethical Review Board Approval Form** (*if applicable*).

NOTE: The Faculty of Graduate Studies does not provide extensions for thesis / practicum submissions beyond the set graduation deadlines. Please refer to the current **Graduate Calendar** for the deadlines.

6. CONTINUATION IN A MASTER'S OR PH.D PROGRAM

All Graduate Students are **required to register each September** for the coming year. Failure to register each year indicates to the registration system that you are “discontinued” from the program. It is essential that continuing graduate students register in both the Fall and Winter terms while at the University.

The most efficient way of ensuring that you are registered in order to retain status is to register for the FGS “Re-Registration” course:

Re-Registration

- Master's: GRAD 7020 A02 CRN = 10559 (spans both Fall and Winter terms)
- Ph.D. GRAD 8020 A02 CRN = 10575 (spans both Fall and Winter terms)

This re-registration is to be over and above any course registration. If you are registered for the re-registration course (over both Fall and Winter terms) you will retain status in your graduate program even if you withdraw from courses.

Students who do NOT have to register for both the Fall and/or Winter terms are:

- Students on a **Parental** or **Exceptional Leave**
 - A student does not have to register in the term(s) for which they have the approved leave.
 - Students on **Regular Leave are still required to register** for the re-registration course in both Fall and Winter term.
- Students who are certain they will be graduating in February.
 - Students graduating in February should register for their final course in the fall term only (thesis, practicum, comprehensive exam, engineering project, final course or re-registration course)
- The Course Registration Numbers (CRN) for the Fall and Winter terms courses that do not span both terms can be found by searching the “Class Schedule” on the web which can be accessed through Aurora.

7. THE PRE-MASTER'S PROGRAM

The Pre-Masters Program of study is intended to bring a student's background up to the equivalent of the required 4-year degree. This may include an opportunity to raise their GPA up to a 3.0 where they may be eligible for entrance into a Masters Degree program.

ADMISSION AND PROGRAM REQUIREMENTS

To be admitted into a pre-masters program in the ECE department, a student must hold a B.Sc. degree in Electrical or Computer Engineering from a recognized University with a GPA of at least 3.00 in the last two full years of their undergraduate program.

- Admission to a Pre-Master's program *does not guarantee future admission* to a Master's program.
- Students must find an advisor for the Pre-Master program.
- The student will take (3000 or 4000 level) courses assigned by the advisor after approval of the ECE Department Head and/or the Chair of the Graduate Studies Committee.
- In exceptional circumstances and upon prior approval by the Dean of the Faculty of Graduate Studies, 7000 level courses may be considered for inclusion in the Pre-Master's program of study for those students who hold a 4 year degree.
- Courses taken as part of the Pre-Master's program may not be transferred to a Master's program at a later date.
- A minimum degree grade point average of 3.0 with no grade below C+ must be maintained to continue in Pre-Master's study.
- Students who fail to maintain this standing will be required to withdraw.

NOTE: Students should realize the difficulty in raising their GPA in a pre-masters program. To be accepted into a Masters program in ECE a final GPA of 3.0 must be obtained.

8. PROGRAM CHANGES

Graduate students in the Department may be considered for a transfer to a different degree. The following restrictions apply

TRANSFER FROM M.ENG. TO M.SC.

- M.Eng. students are not normally allowed to transfer courses but may, under extraordinary circumstances apply for a transfer to the M.Sc. program after completing a minimum of 6 graduate level courses in the M.Eng. program.
- To be considered, students must be sponsored by a faculty member in the ECE department who is willing to supervise their M.Sc. program
- The student must have a GPA that meets or exceeds the minimum requirements in the M.Sc. program.

- The transfer must be approved by the head of the ECE department and/or the ECE Graduate Studies Committee.

TRANSFER FROM M.SC. TO PH.D.

- Outstanding M.Sc. students may be considered for a transfer to the Ph.D. program after a minimum of one year of study in the M.Sc. program.
- Transfers into the Ph.D. program will only be considered at the recommendation of the student's advisory committee and provided that the student's GPA significantly exceeds the minimum requirements in the Ph.D. program.
- The transfer must be approved by the head of the ECE department and/or the ECE Graduate Studies Committee.
- When switching from M.Eng to M.Sc., or M.Sc to M.Eng, a new application form must be submitted along with
 - the appropriate fee (\$90 for Canadian Students, \$100 for International Students)
 - a letter from the students advisor supporting the change in program
 - and a student history.

9. ADVISORY COMMITTEE

For thesis-based programs, the Advisor is chosen at the time of acceptance of the student into the program. The Advisory Committee must be appointed at the time of completion of the M.Sc. or Ph.D. thesis proposal courses ECE 601 or ECE 602. In some cases there may be more than one (1) Advisor. In such cases, the Advisor and Co-Advisor(s) together count as one (1) member of the Advisory Committee and Oral Examination Committee.

- **M.Eng.** -- No Advisor(s) or Advisory Committee is appointed for the student's M.Eng. program. However, an Advisor from the Department is required for the M.Eng. project course, ECE 900 or ECE 910, and the student must make arrangements with a professor in the proposed project area to act as an Advisor for his/her project.
- **M.Sc.** -- The Advisory Committee consists of the student's Advisor(s) as well as a second professor, normally a member of the Department. The advisory committee should meet with the student at least once a year to assess progress on the thesis.
- **Ph.D.** -- The advisory committee consists of the student's Advisor(s) as well as two (2) additional professors, normally chosen from the Department. The Advisory Committee is required to meet at least once a year with the student to assess progress on the thesis.
- In all cases, it is the student's responsibility to submit their projects/thesis well in advance of this date to ensure that project readers have enough time to evaluate the content of their reports.
Extensions are not normally granted.

- Both the M.Sc. and Ph.D. degrees are research degrees and students are expected to maintain full-time registration for the duration of the program.

10. PROGRAM EXTENSIONS

In exceptional circumstances students may be considered for an extension in their time of study. A request for an extension requires a well-documented reason specific to a particular type of research that precludes completion within the time limit, or circumstances beyond the control of the student and/or advisor. Extension requests will be reviewed by the ECE Graduate Studies Committee and/or the head of the ECE department. Extensions may also be given for such consideration as parental leave.

11. GRADUATE SEMINARS

In order to graduate, students in the M.Sc. and Ph.D. programs **MUST** offer a Graduate Seminar based on their research at least one week before their final oral examinations. Graduate seminars are open to the general public and all students and faculty members working in the student's field of study are strongly encouraged to attend.

12. FINANCIAL ASSISTANCE

Financial Support

- The Advisor may or may not provide financial support to the student in the form of a research assistantship. The ECE Department is not responsible for supplying funding for graduate students.
- Formal Letters of Acceptance issued by the Faculty of Graduate Studies do not include financial assistance.
- The details of scholarships and fellowships are available under the Awards Section of the Faculty of Graduate Studies web site.
- After admission and registration, students are eligible to apply and compete for Teaching Assistant positions. These positions pay a nominal amount and preference is given to students with seniority.

Program Fees

Information on program fees may be found on the Registrar's website. For the purpose of fee assessment only, the Master's program in ECE is considered a one-year program.

- Full-time Master: <http://umanitoba.ca/student/records/fees/988.htm>
- Part-time Master: <http://umanitoba.ca/student/records/fees/1032.htm>
- Ph.D.: <http://umanitoba.ca/student/records/fees/1034.htm>
- Pre-Master: <http://umanitoba.ca/student/records/fees/1029.htm>
- Graduate Studies Fees: <http://umanitoba.ca/student/records/fees/988.htm>
- Other Graduate Studies Fees (incl. Occasional Student): <http://umanitoba.ca/student/records/fees/1036.htm>
- Other Compulsory Fees: <http://umanitoba.ca/student/records/fees/986.htm>

13. RESPONSIBILITIES: ECE DEPARTMENT, ADVISOR & STUDENT

Graduate Student Advisor Responsibilities

- Notify students of awards and scholarships offered by the FGS
- Send out weekly notices in regards to deadline dates for awards and scholarships
- Send out information regarding deadline dates for upcoming Graduands
- Prepare Status Letters for students upon request
- Prepare Annual Progress Reports for Students and give them to the appropriate Advisor
- Send out announcements regarding M.Sc. and Ph.D. Candidacy Exams
- Make sure students are properly registered and if not, notify the student.
- Ensure that students' files are current with respect to the address of the student, name of the advisor and the advisory committee members, and to inform the Faculty of Graduate Studies of any changes

Advisor Responsibilities

- General day-to-day management and guidance of the student research project.
- With student input, decide what lecture courses the student should attend.
- Meet with student on a regular basis
- Meet with student and advisory committee regularly (minimum of once a year)
- Filling out and submitting the student annual progress in a timely fashion.
- Timely submission of course marks

Advisory Committee Responsibilities

- The advisory committee acts as a partner with the student and the advisor in advising the student on research problems. Each member serving on the advisory committee is expected to undertake the following responsibilities:
 - Familiarity with the research project of the student
 - Availability for meetings with the advisor and the student for preparing the annual progress report or as deemed essential
 - Review the thesis in a timely manner for final examination
 - Read and provide comments to any written material (thesis reports, practicum etc.) submitted by the student in a timely manner (two (2) to four (4) weeks depending on the length of the document).
 - An annual meeting with the student and advisory committee is a requirement.

Graduate Student Responsibilities

- Know the policies, procedures and deadline dates for the Faculty of Graduate Studies and Department deadline dates (deadline dates are sent on a weekly basis by Graduate Student Advisor)
- Obtain an “ee.umanitoba.ca” email account and check it on a regular basis
- Declare him/her self as full-time or part-time based on the time that would be devoted to graduate studies
- Assess his/her financial needs during the tenure of the graduate program and obtain a document from the advisor outlining the type and duration of the financial support. (Note: student may receive a letter indicating no support is available).
- Share the responsibility with the advisor to develop a sound research plan that has an achievable timetable and milestones.
- Keep a systematic record of research work and results and be able to answer to the advisor and the advisory committee with respect to progress.
- Self-evaluate progress and productivity throughout the program.
- Become familiar with and follow the University of Manitoba Policies and Procedures regarding Research Ethics.
- Ensure that a meeting is held with the advisor and the advisory committee (where applicable) and prepare/present a progress report. (See Annual Progress Reports below)
- Have additional meetings with the advisory committee after consultation with the advisor, if considered essential to the progress of the research
- Organize and be efficient in processing the data and in the planning of future research.
- Take full responsibility for his/her academic and research program.
- Allow adequate time for his or her advisor or committee members to provide comments on written material
- Ensure to allocate sufficient time to meet important deadlines (registration, thesis submission to committee members etc.)

14. ANNUAL PROGRESS REPORTS

At the end of the Academic year, students are required to submit an Annual Progress Report. The report is sent to the Grad Student Advisor in late April, and then distributed to the advisors. The advisor fills out the report with the student, the advisor and student must sign it and return it to the Grad Student Advisor, who then makes a copy for the student’s file, and sends the original to Grad Studies. Annual Progress Reports must be completed and sent over to Grad Studies by June 15th of each year.

Annual Progress Reports must be processed in Grad Studies before registration for the Fall term starts. If the report is submitted late, and not processed before registration begins, a hold is placed on the students account prohibiting them from registering. Students will not be able to register until the

hold is taken off of their account. If this is not done by the end of the registration deadline, students will have to pay late fees.

15. GradCon

- All full-time M.Sc. students are required to present at least once at GradCon after the first year in their program and before the end of their second year. M.Sc. students who are past their second year now, but have not yet presented at GradCon, must still present once at GradCon in order to complete their program.
- All full-time Ph.D. students are required to present every year at GradCon until they finish their program (starting after one year in the program). Full-time PhD students must also submit a poster for presentation at GradCon.
- Full-time students who are unable to present because of research away from the University must still present their research, upon return.
- Students, who have recently presented at another conference, may present the same material at GradCon.
- Students within one (1) month of defending their thesis are not required to present at GradCon, but may do so if they wish

16. PLAGIARISM

To plagiarize is to take ideas or words of another person and pass them off as one's own.

- When you use someone else's words, you must put quotation marks (“ ”) around them and give the writer or speaker credit by revealing the source in a citation. Even if you revise or paraphrase the words of someone else or just use their ideas, you still must give the author credit in a note. Not giving due credit to the creator of an idea or writing is lying.
- To avoid plagiarism you must give credit whenever you use someone else's ideas. Keep the following suggestions in mind when using material from other sources:
 - Put everything that comes directly from the text in quotation marks.
 - If you are using material cited by an author and you do not have the original source, introduce the quotation with a phrase such as "as quoted in...."
 - Paraphrase. Instead of just rearranging or replacing a few words, read over what you want to paraphrase, cover up or close the text so you cannot see any of it and write out the idea in your own words. Check your paraphrase against the original text to be sure you have not accidentally used the same phrases or words, and that the information is accurate. Still be sure to credit the source.
- The following website has more information on plagiarism. You may also wish to visit the office of Student Advocacy. www.umanitoba.ca/libraries/use_it/plagiarism.shtml
- Give credit for any facts, statistics, graphs, drawings.

- Not understanding plagiarism is not a defence and the consequences for a graduate student are significant. Below are some examples from 2005 concerning plagiarism and the consequences

Example 1:

Offence: plagiarism in a paper (1 student)
Penalty: “F” in the course, comment on transcript for 3 years, academic result of “F” was student was required to withdraw by the home department.

Example 2:

Offence: plagiarism in course report (2 students)
Penalty: “F” in course, written apology to instructor, prepare a research paper on plagiarism, loss of scholarship.

Example 3:

Offence: plagiarism in paper (1 student)
Penalty: “F” in course, written apology to instructor, comment on transcript for one year, suspended from taking Faculty of Graduate Studies courses for one year

Example 4:

Offence: plagiarism in paper (1 student)
Penalty: “F-CW” in course, expulsion from the Faculty of Graduate Studies

17. FRAUD

In the past, several graduate student applications that were found to be fraudulent were rejected. The students were required to withdraw from the Faculty of Graduate Studies with no right to apply in the future.

It was determined that these students submitted fraudulent documents to the Faculty of Graduate Studies in order to gain admission. Protecting the integrity of a University of Manitoba graduate degree is very important to the Faculty of Graduate Studies. The admission staff conducts frequent, random, spot checks of the documents of students accepted into the Faculty by returning their official documents to the degree granting institute for verification.

18. NEED HELP

SAFEWALK

The Safewalk Program provides a student patrol member or a Security Services Officer to accompany you to and/or from your destination on campus. Student patrol members are identified by the wearing of specially marked student patrol jackets. The service is available, free-of-charge, 24-hours per day.

If you would like a Safewalk:

- Call SAFEWALK directly at 204-474-9312;
- Approach a Student Patrol directly; or
- Use a Code Blue Pole or Red Phone

CODE BLUE EMERGENCY CALL STATIONS

These call stations are located at strategic outdoor sites on the Fort Garry and Bannatyne Campuses. When activated, they alert everyone nearby of an emergency with a blue flashing light and provide two-way communication with Security Services. Whatever resources that are required to deal with the emergency will be dispatched immediately.

RED EMERGENCY PHONES

These red phones will connect you with Campus Patrol Officers. Once picked up, the phone will indicate your location for the Patrol Officer dispatcher. Red Phones are available on both the Fort Garry and Bannatyne

RED EMERGENCY BUTTONS

These red buttons which are located at strategic sites in the tunnels, when pushed, will alert Security Services that an emergency exists in that location and a patrol officer will be dispatched immediately to investigate.

EMERGENCY RESPONSE FOR TRAVELERS

.204-474-9312 | emergency_response@umanitoba.ca

Students and staff traveling for University related activities are able to contact the U of M in the event of an emergency. The emergency response telephone number and email account are monitored 24-hours per day 7-days per week by Security Services. Individuals using this service should provide the following information to Security Services: name, date of birth, nature of the travel emergency, location and contact information for traveler, family and home institution.

Emergency (24 Hours)

(Fire, Police, Ambulance, Hazardous Mtls, etc.)

- Fort Garry / Bannatyne Campus 555
- MTS or ROGERS Wireless #555
- Off-Campus Phones 474-9341
- City Police
 - On-Campus (4)911
 - Off-Campus 911
 - Non-Emergency (4) 986-6222

Dental Services

Campus Dental Centre
100 University Centre 474-7373

Faculty of Graduate Studies

500 University Centre 474-9377

Fee Assessment

Registrar's Office*
400 University 474-9420

Health & Dental Insurance (International Students)

101 University Centre 474-6666
Registrar's Office*
400 University Centre 474-9427

ID Cards

Registrar's Office
400 University Centre 474-9420

Immigration - General Info & Regulations

International Centre for Students*
541 University Centre 474-8501

University Health Service*

104A University Centre 474-8411

Learning and Study Skills

Disability Services
520 University Centre 474-6213

Name, Change of

Registrar's Office*
umanitoba.ca/student/records
400 University Centre 474-9423

Off-Campus Housing

UMSU
living.umsu.ca
101 University Centre 4 74-9717

Parking & Shuttle Services

Parking Permits, Parking Tickets, Payment of
423 University Crescent (Welcome Centre)
474-9483

Tuition and Fees, Payment of Cashier's Office

umanitoba.ca/feepayment
138 University Centre 474-8716

19. FINAL REMARKS

The information provided in this handbook should assist students in planning and carrying out their graduate program. Please do not hesitate to approach the Chair of Graduate Studies, or the Graduate Student Advisor, if you require further information or help during the course of your studies. We hope that your stay in the Department will be a very positive and rewarding experience.

Contact Information

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