

Carleton School of Information Technology Graduate Students' Manual

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<http://grad.csit.carleton.ca/>

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1 General Information

1.1 Programs

Carleton School of Information Technology (**CSIT**) has the following graduate programs:

- PHD in Information Technology (**PHD** or PHD-IT in this document). This is a thesis-based program and students work with one or more research supervisors.
- Master's in Information Technology, Digital Media (**MDM** in this document). This is a thesis-based program and students work with one or more research supervisors.
- Master's in Information Technology, Digital Media specialization in Data Science (**MDS** in this document). This is a thesis-based program and students work with one or more research supervisors.
- Master's in Information Technology, Network technology (**MNET** in this document). This is a course-based program and students have an academic advisor.

More information and details, resources, seminar schedules, etc., can be found online at:

<http://grad.csit.carleton.ca/>

1.2 Academic Regulations

We follow standard university regulations (<http://calendar.carleton.ca/grad/gradregulations/>) unless specifically identified.

- For program requirements, see Section 2.
- For thesis requirements, see Section 3.

1.3 Registration

- Registration as a full-time student is required for any funding.
- Any student who remains unregistered in his/her degree program (not taking any courses) for three continuous terms (twelve months) will lose his/her graduate status.
- Some courses may not finish in one term. These are referred to as “continuing” courses and include:
 - ITEC-5001 (IT Seminar)
 - ITEC-5905 (MNET Project)
 - ITEC-5909 (MDM Thesis)
 - ITEC-6907 (PHD Comprehensive Exam)
 - ITEC-6908 (PHD Proposal)
 - ITEC-6909 (PHD Thesis)
- Students who register in a continuing course, are required to maintain registration in that course for as many terms as necessary (including summer) until the course is passed.

- A grade of B- or better must be obtained in each course credited towards the degree requirements.
 - CSIT students can petition to allow a grade of C+ in 1.0 credits. We will consider petitions on a **case-by-case basis**.

The following **minimum requirements** must be met before the graduate committee will consider a petition:

- Students must have completed at least 2.5 credits in their program.
- The rest of the grades (all but the course which obtained a C+) must average a CGPA of at least 10.0.

Note that exceptional circumstances will be considered.

To submit a petition, send an email to the graduate administrator that contains your written request for the petition, any information that the committee should consider, your audit and your average CGPA for the rest of your grades.

1.4 Supervision (thesis-based programs)

The Faculty of Graduate and Postgraduate Affairs has outlined the responsibilities & expectations for graduate supervision. <https://gradstudents.carleton.ca/thesis-requirements/graduate-supervision-responsibilities-expectations-policy/>

- Graduate students in programs that include a thesis need to have at least one research supervisor.
 - At least one of the supervisors needs to be CSIT faculty member or cross-appointed faculty member.
 - Adjunct research professors may supervise students according to the terms of their appointments (only Masters level, etc.).
- Non-CSIT faculty members can apply for a cross appointment in CSIT to solely supervise graduate students.
- Non-CSIT faculty members can co-supervise with a CSIT faculty member at any time.

1.5 Advising (course-based program)

- Students are assigned an advisor in the admission offer.
- When you start your program, it is your responsibility to contact your advisor. Send them an email with an introduction and discuss courses you will take during your first term as well as your entire program.
- Check in with your advisor once a term.
- Contact your advisor when you need a special permission. Do not wait until the last minute.

2 Courses

2.1 Program requirements:

- MASTER's in NETWORKING (MNET)
 - ITEC 5002 [0.5 credit] Fundamentals of Information Technology Research
 - 2.0 credits in ITEC 510X courses
 - ITEC 5905 [1.0 credit] Network Technology Project
 - ITEC 5001 [0.0 credit] Information Technology Seminars
 - 1.5 credits of electives (which may include other ITEC courses) selected with consultation of their supervisor.
- MASTER'S in DIGITAL MEDIA (MDM)
 - ITEC 5002 [0.5 credit] Fundamentals of Information Technology Research
 - 1.5 credits in ITEC 52XX courses
 - 0.5 credits in Electives (which may include other ITEC courses) selected in consultation with the supervisor
 - ITEC 5001 [0.0 credits] Information Technology Seminar
 - ITEC 5909 [2.5 credits] Master's Thesis in Digital Media
- MASTER'S in DIGITAL MEDIA specialization in DATA SCIENCE (MDS)
 - DATA 5000 [0.5 credit] Data Science Seminar
 - ITEC 5000 [0.5 credit] Analytical Methods for Information Technology
 - 1.0 credits in ITEC 52XX courses
 - 0.5 credits in Electives (which may include other ITEC courses) selected in consultation with the supervisor
 - ITEC 5909 [2.5 credits] Master's Thesis in Digital Media
- PHD in INFORMATION TECHNOLOGY (PHD)
 - ITEC 6200 [0.5 credit] Introduction to Interdisciplinary Research in Information Technology
 - 1.0 credit in Electives selected in consultation with the supervisor
 - ITEC 5001 [0.0 credit] Information Technology Seminar
 - ITEC 6907 [0.0 credit] Doctoral Comprehensive
 - ITEC 6908 [0.0 credit] Doctoral Proposal
 - ITEC 6909 [8.5 credits] Doctoral Thesis in Digital Media

2.2 Common curriculum

2.2.1 ITEC-5001, Seminar

- ITEC Seminars are presented by students, faculty, and invited speakers.
- ITEC seminar is required for all MDM, MNET and PHD students. To obtain a satisfactory grade, students need to present at least once and attend at least 8 other seminars (totaling 9).
- Attendance:
 - Any student can attend ITEC seminar, whether they are registered or not.
 - It is the student's responsibility to make sure that their attendance is recorded.
 - If the event is organized by CSIT or a partner group, a signing sheet will be available through the event organizer.

- If the event is independent of CSIT (as it may happen occasionally), an attendance form (available through CSIT) must be signed by the event organizer.
- Attendance will be kept on record until you register for the course.
- Registration:
 - Students should only register in the seminar during the term they expect to fulfill the requirements, or after they have fulfilled the requirements. There is no benefit to registering earlier than necessary.
 - If requirements are not met, the student may be requested to withdraw from the course or maintain registration (and thus pay the tuition cost).
- Schedule and Content:
 - The seminar schedule is available online:
<http://www.csit.carleton.ca/index.php?pageID=GradCurrent>
 - It is estimated that we will have one external speaker and/or 2 student presentations per seminar during the fall and winter terms.
 - Student presentations are short (~10 minutes, plus Q&A), and multiple students will be scheduled to present for each session.
- Presenting:
 - Students need to contact the Seminar coordinator (seminar@csit.carleton.ca) to schedule a presentation.
 - The presentation topic is generally related to students' thesis research. Students are encouraged to present more than once, and if they do so, they may choose other topics of interest.
 - Students are required to submit a title for their presentation, ideally prior to the start of the term at which they are presenting, and no later than 2 weeks before they present.
 - PHD students are encouraged to present annually.
 - No report or other submission is required except for presentation materials.
- The seminar requirements can be fulfilled throughout the program.
- The seminar schedule will be set by the Graduate Committee. They will be during the allocated time shown on the course schedule on Carleton Central.
- Attendance of non-ITEC seminars:
 - Some talks by external guests or other events scheduled for other times may count toward the attendance record. Information will be provided on a case-by-case basis.
 - External events require approval in advance from the ADGS unless explicitly indicated.
 - It continues to be the student's responsibility to record their attendance at external events.

2.2.2 ITEC-5900, Directed Study

- All graduate students may take Directed Study (DS) as an elective.
- A Directed Study covers topics that are not included in offered courses, or topics that student intends to work on beyond the coursework.
- The course is not open to anyone by default. In order to register, the following process is required:
 - Student communicates with a faculty member about a topic they are interested in studying, and agree on a subject.

- This faculty member will serve as the DS instructor.
 - DS instructors may be the same as research supervisor (or academic advisor for MNET).
 - The ITEC-5900 Registration Form will be signed by both student and instructor.
 - Student's research supervisor (or academic advisor for MNET) approves the subject, confirms that it does not overlap significantly with the thesis (or project for MNET), and signs the registration form.
 - DS instructor sends the course outline and signed form to ADGS.
 - ADGS (or the School Director) approves the course after possible changes to the outline.
 - Student submits a registration error override request.
 - Grad Admin overrides the registration error, allowing the student to take the course.
- To streamline the process the ITEC-5900 Registration Form has to be used and signed by all individuals involved, in proper order.
 - The form can be downloaded from <http://www.csit.carleton.ca/index.php?pageID=GradCurrent> or obtained from the Graduate Administrator.
- A course outline should include:
 - The instructor's name, contact information, term of the course
 - Brief description of the course topic and student activities
 - A statement showing how this subject is not covered by other courses including thesis/project
 - Detailed topics per week
 - Evaluation items with specific deliverables and due dates
- DS can be taken only once.
 - DS can count towards another ITEC course that is not offered. In that case, DS can be taken again as an elective on a different subject.

2.2.3 ITEC-5905, MNET Project

- All MNET students are required to take the project course.
- Projects are completed individually.
- The process for registering in ITEC-5905 is similar to the process for ITEC-5900 (see Section 2.2.3 above).
 - Student communicates with a potential project supervisor and agree on a subject.
 - The project supervisor may be the same as the student's academic advisor.
 - The ITEC-5905 Registration Form will be signed by both student and supervisor.
 - Student's academic advisor approves the subject and signs the registration form.
 - Supervisor sends the project outline and signed form to ADGS.
 - ADGS (or the School Director) approves the project after possible changes to the outline.
 - Student submits a registration error override request.
 - Grad Admin overrides the registration error, allowing the student to take the course.
- To streamline the process the ITEC-5905 Registration Form has to be used and signed by all individuals involved, in proper order.

- The form can be downloaded from <http://www.csit.carleton.ca/index.php?pageID=GradCurrent> or obtained from the Graduate Administrator.
- A project outline should include:
 - The student's name
 - The supervisor's name, contact information, term of the course
 - Brief description of the project topic and student activities
 - Project schedule
 - Evaluation items with specific deliverables and due dates
- MNET Project is a continuing course and may take more than one term to finish (see Section 1.3).

3 Theses and Exams

3.1 General Information

- A thesis is required to complete MDM, MDS, MNET-thesis and PHD programs at CSIT, and will be prepared individually under the supervision of a CSIT faculty member.
 - Theses can have multiple supervisors and at least one of them must be from CSIT.
- Graduate students are recommended to attend at least one thesis defence by another student (preferably in CSIT, or another school/department at Carleton) prior to theirs, so they are familiar with the format and procedure.
 - According to university regulations, attending a defence requires permission of the student who is defending. Any question from the audience has to be submitted to the chair of the examination committee in advance.
- PhD and Master's theses have to follow the guidelines and a standard template.
 - The template will be available through the University website and the Graduate Administrator, and will include common structure, format, etc.
 - Abstract, Tables, Intro, Related Work, Conclusion, References, Appendices, etc.
 - Page margins, paragraph formatting, font size, etc.
 - The guidelines include instructions on the content of common chapters, and what is commonly expected. They will be reviewed through regular workshops and made available to students.
 - <http://gradstudents.carleton.ca/thesis-requirements>
 - We specify that a thesis should have the following requirements:
 - Level of English: Should convey well the technical requirements to a broad audience
 - Introduction: should include a specific problem statement
 - State of the art: Gap analysis / Present an argument which shows conclusively that this work is needed and hasn't been done before

3.2 Master's Thesis (MDM/MDS)

- Master's theses are expected to show competency in scientific writing and research skills, in addition to novel approaches in digital media technologies, applications, or content.
- The topic of master theses will be determined by the student and supervisor(s). No approval process, or committee selection prior to the defence, is required.
- Registration in the thesis course requires approval of the supervisor.
- Theses are examined by a committee consisting of:
 - Chair person from CSIT
 - One examiner from CSIT
 - One non-CSIT examiner from Carleton University who works in a related field
 - Supervisor(s)
 - <http://gradstudents.carleton.ca/wp-content/uploads/Thesis-Examination-Policy-Revised-22-April-2014.pdf>

3.3 PhD Comprehensive Exams and Thesis Proposal

3.3.1 PhD Qualifying Process

- All PhD students need to pass a set of two qualifying exams (or milestones) in order to officially become a PhD Candidate.
- The focus of qualifying exams is to show the student is capable of doctoral research, is knowledgeable in the selected field, and has a good plan for his/her thesis research.
- The qualifying exams include:
 - ITEC-6907, Comprehensive Exam:
 - Students prepare and submit a document focusing on the problem statement, literature review, and gap analysis and directions for research (including potentially an initial idea/solution).
 - Students defend their submission in an oral exam including questions from examiners but no presentation
 - ITEC-6908, Proposal Defence:
 - Students prepare and submit a written proposal focusing on updated literature review, detailed idea/solution, and early results.
 - Students defend their proposal in an oral exam including presentation and questions from examiners
- These two qualifying exams are expected to be done one after another, and prior to entering the 3rd and 4th years of full-time studies, respectively.
- The qualifying exams will include a committee consisting of:
 - Chair person from CSIT – The supervisor may chair the committee.
 - One examiner from CSIT
 - One non-CSIT examiner from Carleton University who works in a related field
 - Supervisor(s)

3.3.2 Comprehensive Exam

3.3.2.1 Regulations

- The comprehensive exam should be taken in the first or second year of the PhD studies.
- The examination committee consists of supervisor(s), an examiner from CSIT, an examiner from Carleton but not CSIT, a chairperson from CSIT (the supervisor may chair the exam).
- The subject area of the examination and the committee members will be decided by the student and supervisor(s) and approved by the Associate Director of Graduate Studies.
- The exam includes a written document submitted to the committee, followed by an oral defence.
 - The document must be submitted at least 2 weeks prior to the oral exam.
 - The document will not be judged based on length but typically will have 6 to 8 thousand words.
 - The supervisors will have limited support in preparing the document as it is a qualifying exam and not a research collaboration. They can:
 - review a draft and provide general feedback

- give guidance on how to organize the document and prepare an argument
 - point to relevant literature and topics to be included.
- Grading of the exam
 - The written document will be graded Satisfactory, Strong concerns, or Non-satisfactory.
 - Strong concerns indicate that the document is problematic but that the oral defence will proceed.
 - Non-satisfactory indicates that the document is unsuitable to be orally defended. The examiners will provide general feedback.
 - The review of the written document should be completed at least a week in advance.
 - The oral defence will be graded as Satisfactory or Not-Satisfactory.
 - The overall exam will be graded as Satisfactory or Not-satisfactory.
 - The exam committee will decide if non-satisfactory cases require the submission of the document, oral exam, or both.
 - ITEC-6907 is prerequisite for ITEC-6908.
- Students can retake the Comprehensive Exam once. Those who fail this exam twice will have to withdraw from the program.
 - Students have to take ITEC-6907 at the end of their 2nd year.
- The deadline to pass the comprehensive in a term is the last day of exams (as set by the graduate calendar).

3.3.2.2 *Submission*

- Abstract
- Statement of Relation to Other Work
 - Students are allowed to use material from other projects and publications they have done as long as it is clearly stated and there is enough new material in the submission.
- Introduction
 - Introduction to the field of study.
 - Background, motivation, significance, stakeholders, etc., will be discussed here
 - Identifying the main goals and objectives
 - Here we understand what the systems/products/theories involved in this document are trying to achieve.
 - This can be the basis for evaluation criteria
- Review of existing work that try to achieve the above goals
 - Grouping and structuring of these approaches to find patterns and commonalities
 - Critical analysis to find strengths and weaknesses, and gaps in the current knowledge
 - This analysis should be based on the goals listed above and using proper evaluation criteria
- Identifying and reviewing related subjects if applicable, for example
 - Those from other fields that can be applied here to solve the above problems
 - Not directly related but similar or high-level subjects
- Gap Analysis
 - Summary of existing problems and research gaps
 - Hints to possible solutions (basis of thesis proposal)

- Conclusion
- References

3.3.3 Proposal Defence

Regulations for Proposal Defence are similar to Comprehensive Exam.

- Students can retake the Proposal Defence once. Those who fail this exam twice will have to withdraw from the program.
 - Students have to take ITEC-6908 at the end of their 3rd year.
 - Students may request up to two (2) terms of extension for their proposal.
 - The first term request must be approved by the ADGS or School Director.
 - The second term request must be approved by the graduate committee. A clear justification must be provided by the student for this extension request.
- The submitted document is expected to build on a proper literature review (similar to what was done for Comprehensive Exam) but focus on proposing a clear solution and research plan, and show early results that can convince the committee of the value of the proposed research and feasibility of the plan. Early work should include at least one completed research project/study. We expect that most graduate students will have submitted this early work for peer-review (or even have the work accepted/published). However, if a peer-reviewed submission has not happened yet, the work should still be of high quality to be adequate for a publication.
 - The proposal may have a different subject than the Comprehensive Exam.
- The document must be submitted at least 3 weeks prior to the oral exam.
- The deadline to pass the thesis proposal in a term is the last day for graduate students to upload their final thesis copy to graduate in a term (as set by the graduate calendar).
- ITEC-6908 is prerequisite for ITEC-6909.

3.4 PhD Thesis

- PhD theses are expected to show excellence in scientific writing and research skills, in addition to novel theoretical frameworks and approaches in digital media technologies, applications, or content.
- Thesis Committee formed at the proposal time will continue to function in an advisory role until the student has graduated.
- PhD theses have to follow the guidelines and a standard template, similar to Master's theses.
- PhD theses are examined by the Thesis Committee
 - Chair of the committee will be assigned by FGPA
 - Another CSIT faculty member needs to be added
 - One external examiner needs to be added who is not from Carleton University
 - <http://gradstudents.carleton.ca/wp-content/uploads/Thesis-Examination-Policy-Revised-February-2016.pdf>

4 Timeline

While graduate students do not have a fixed timeline, some general guidelines and requirements exist.

- Full-time MDM studies will have a nominal duration of 6 terms (2 academic years).
 - The first 2 terms are usually for coursework.
 - By the end of these 2 terms, students are expected to have good idea of their research topic.
 - The next 3 terms are usually spent on the research.
 - The 6th term is generally for writing up the thesis and doing the defence, although this can be done in the 5th term too. Finishing in fewer than 5 terms is not likely.
- Full-time MNET studies will have a nominal duration of 6 terms (2 academic years).
 - For the project-based option: The first 3–4 terms are usually for coursework and 1 or 2 more terms for project.
 - For the thesis-based option: timeline identical to that of MDM studies above.
- Full-time PhD studies will have a nominal duration of 12 terms (4 academic years).
 - The students are expected to finish their coursework in the first 3 or 4 terms (by the middle of 2nd academic year).
- Graduate students who are registered in thesis/project/comprehensive/proposal will have to continue registering in the course until successful completion.
- Leaves of absence or part-time studies will affect the calendar duration.
 - Part-time students and those on leave will not receive funding (TAships or scholarships).
- Extension to the above deadlines requires permission.