17.1 Administration of Graduate Studies

17.1.1 Dean of Graduate Studies

The role of the dean of Graduate Studies is central to all major academic and administrative graduate study activities.

17.1.1.1 Responsibilities

The responsibilities of the dean of Graduate Studies include:

- providing leadership, strategic planning and vision, particularly in the growth and development of graduate programs and activities;
- administering all regulations relating to graduate studies;
- chairing the Graduate Studies Committee of Academic Council;
- representing graduate studies at Academic Council; and
- representing the university's graduate studies to internal and external individuals and groups.

17.1.2 Graduate program directors

Each program will have a graduate program director. This role is of critical importance to ensuring the success of the program and its students.

Graduate program directors should have a strong interest in students and their success, thoroughly understand UOIT's policies and procedures for graduate studies, and be available on a regular basis to assist students seeking advice on issues related to their studies.

The graduate program director is accountable to the dean of the faculty and, with respect to graduate activities, to the dean of Graduate Studies.

17.1.2.1 Appointment

The graduate program director is appointed by the dean of the home faculty, in consultation with the dean of Graduate Studies. The duration of the appointment may be two or three years at the discretion of the home faculty dean with opportunity for re-appointment.

17.1.2.2 Responsibilities

Each graduate program director has a formal role and responsibilities relating to the Graduate Studies Committee of Academic Council, including nominations, Supervisory Committees, student awards and similar matters.

The main duties of the graduate program director are to:

1) ensure that all graduate studies policies and procedures are administered fairly and correctly and are communicated to students in their program;
2) chair the Academic Committee for the program and make recommendations to the dean of Graduate Studies regarding the admission of applicants;
3) approve a program of studies for each student and provide advice regarding changes to a student's status or program;
4) appoint a faculty advisor or research supervisor for each student;
5) where applicable, work with the student and research supervisor to form a Supervisory Committee and appoint a committee chair;
6) recommend external examiners to the dean of Graduate Studies;
7) consider requests from students to defer an examination;
8) consider for approval changes to a student's grade;

9) liaise regularly with the dean of Graduate Studies and, as needed, with the registrar;
10) maintain student records and forward to the appropriate UOIT office(s), as required;
11) provide advice, as needed, to units and bodies such as the Graduate Studies Committee of Academic Council;
12) help ensure that graduate students have the necessary resources, facilities and support;
13) co-ordinate financial assistance (including assistantships and fellowships) for graduate students;
14) help monitor the progress of graduate students;
15) provide input and assistance as requested for the creation and review of graduate programs;
16) mediate as needed in conflicts or disputes between a graduate student and his or her research supervisor; and
17) co-ordinate graduate student recruitment activities for the program.

17.2 Graduate faculty appointments

Faculty members who are eligible to participate in the supervision of graduate students and teach graduate courses must have an academic appointment at UOIT. This may be a core or definite-term appointment, or that of an adjunct professor or professor emeritus/emerita. Individuals wishing to teach at the graduate level are nominated by the dean of the faculty through which the program is delivered. Once approved by the dean, the nomination is forwarded to the Graduate Studies Committee of Academic Council for final approval.

All faculty members who are currently involved in any aspect of graduate education, including acting as a research supervisor and/or member of a Supervisory Committee and who are listed in the Ontario Council of Graduate Studies (OCGS) briefs, automatically become eligible to teach graduate courses and supervise graduate students. The category of membership will be determined by the criteria set out in section 17.2.1.

Membership is effective from the date of introduction of a graduate program until the program is scheduled for a periodic appraisal by OCGS. At this point and every seven years thereafter, all faculty members will be re-evaluated for graduate teaching and supervision privileges. In effect, the normal renewal of graduate teaching and supervision privileges will be synchronous with OCGS periodic program appraisal.

The updated faculty list will be printed annually in the paper and electronic versions of the graduate section of the Academic Calendar. It is the responsibility of the graduate program director to keep an up-to-date list of eligible faculty members who participate in a graduate program.

17.2.1 Categories of graduate teaching and supervision privileges

Graduate studies at UOIT has three categories of eligibility: graduate faculty, probationary faculty and special faculty.

Graduate faculty are UOIT faculty members who are authorized to participate in all aspects of a graduate program on a regular and sustained basis. These privileges are renewable every seven years at the time of the OCGS periodic appraisal of the graduate program in which the faculty member participates. Graduate faculty are authorized to perform a variety of activities including: serving as a research supervisor or co-supervisor or as a member of a Student Supervisory Committee, participating in an examining committee, teaching graduate-level courses, acting as a faculty advisor, and mentoring and advising graduate students in all aspects of their program. Graduate faculty have a research program that includes externally refereed publication, as well as previous experience in graduate teaching and/or supervision.

Probationary graduate faculty status is accorded to new faculty members at UOIT who are authorized to participate in graduate education immediately upon commencement of duties at UOIT. Faculty with graduate supervisory or teaching experience and a research program that includes externally refereed publication may be accorded probationary graduate faculty or graduate faculty status on appointment. Normally, probationary graduate faculty privileges are granted for two-year periods. Probationary graduate faculty have the same responsibilities as graduate faculty, but cannot act as a student's sole research supervisor. In graduate programs involving theses, projects or major papers, a faculty member may apply for graduate faculty status after successful

A student registered in a program that requires a thesis, project or major paper may initially have a faculty advisor, but will be assigned a research supervisor when the student begins his or her research. In some cases a student may have co-supervisors, with the terms established through an agreement for co-supervision and made clear at the outset to all involved.

17.4.1 Faculty advisor appointment

The graduate program director is responsible for assigning faculty advisors.

17.4.2 Faculty advisor responsibilities

The faculty advisor will be a member of the student's home faculty. The main responsibilities of the faculty advisor are to:

1) consult with the student, recommend a program of study, and submit it to the graduate program director for approval;
2) help the student choose an appropriate area of research, if applicable;
3) ensure that the student understands all degree requirements and regulations, as well as applicable policies;
4) be knowledgeable about, and inform the student of, key deadlines and related information;
5) be reasonably available to the student to discuss the program of study, as well as any academic concerns;
6) if requested, advise the student on academic or personal student services or resources; and
7) monitor the student's academic progress.

17.4.3 Research supervisor appointment

The relationship between the student and the research supervisor is most important to the student's successful completion of a graduate degree. The graduate program director will seek input from the student before assigning a research supervisor.

All research supervisory appointments must be approved in the first instance by the dean of the primary faculty in which the student is registered. Except in extraordinary circumstances, approved on an individual basis by the dean of Graduate Studies, s must be approved in 2.8(ved inved in 2.8(itc0 t avisor)-5cuOl9dean o/r.1(vices or)]TJ 1.studer

17.4.4 Research supervisor responsibilities

Specific responsibilities of the research supervisor include:

1) being sufficiently familiar with the field of research to provide guidance and/or be willing to gain that familiarity before agreeing to act as a research supervisor;
2) being accessible to the student for consultation and discussion of the student's academic progress and research;
3) helping the student select and plan a suitable, timely and manageable research topic;
4) co-operating with the student and graduate program director to establish a Supervisory Committee to convene meetings, normally at least once annually, to evaluate the student's progress;
5) responding in a timely, consistent and thorough manner to written work submitted by the student, with constructive and well-informed suggestions for improvement and continuation;
6) providing a research environment that is safe, healthy, tolerant and free from harassment, discrimination and conflict;
7) within the norms appropriate to the discipline, providing financial support and/or helping the student obtain financial support from all reasonable sources;
8) when there is conflicting advice, or when there are different expectations on the part of co-supervisors or members of a student's Supervisory Committee, endeavouring to achieve consensus and resolve differences in the best interests of all involved;
9) acknowledging appropriately the contributions of the student in presentations and published material, in many cases via joint authorship;
10) being sensitive to cultural factors which may influence the individual student's learning and research behaviour and experience; and
11) making arrangements for continuity of the student's supervision before beginning an extended leave of absence.

17.4.5 Student responsibilities

Student responsibilities include:

1) making a commitment and showing substantial effort, initiative and dedication to gain the background knowledge and skills needed to pursue the research project successfully;
2) working with their research supervisor to develop a plan and a timetable for completion of all stages of the research project, and working assiduously to adhere to a schedule and to meet appropriate deadlines;
3) meeting regularly with their research supervisor and reporting fully and regularly ting fully880,

17.4.6 Student-research supervisor conflicts

It is the responsibility of UOIT and its faculties to ensure that all graduate students receive appropriate and fair supervision. Due to the nature of the relationship between the student and research supervisor, conflicts may arise. In such instances, the first step must be to attempt to resolve the conflict informally between the student and research supervisor. It is the responsibility of the graduate program director to act as a mediator.

A student who believes the conflict has not been resolved should contact the dean of the student's home faculty. If the conflict persists, the student may pursue appropriate resolution through the dean of Graduate Studies.

17.5 Supervisory Committee

Each graduate student in a program that requires a thesis will have a Supervisory Committee. Early formation of a Supervisory Committee, along with regular meetings and formal meeting records, will help ensure higher completion rates.

17.5.1 Appointment

The Supervisory Committee will be appointed by the graduate program director, after consultation with the research supervisor and the student. The appointment will be made once the research supervisor is satisfied that the student has made adequate progress in the chosen research area.

17.5.2 Composition

Normally, each Supervisory Committee consists of the student's research supervisor and at least one other UOIT faculty member. The chair, who may be someone other than the student's research supervisor, will be appointed by the graduate program director of the student's home faculty.

17.5.3 Responsibilities

The Supervisory Committee's main responsibilities are to:

1) advise the student and help define the course of study;
2) assess and approve the student's research proposal;
3) provide support to the student and research supervisor by broadening and deepening the range of expertise and experience available;
4) be reasonably accessible to the student to discuss and suggest other sources of information;
5) offer comments when requested on written work submitted by the student;
6) review the student's progress toward successful completion of the thesis with scheduled meetings at least once per year;
7) provide constructive feedback and provocative discussion of the student's program of study, thereby exposing the student to a wider range of expertise and ideas than can be provided by the research supervisor alone;
8) report progress to the graduate program director and recommend continuation in the program based on satisfactory performance (in the case of reports of unsatisfactory progress, the student may be required to withdraw from the graduate program); and
9) recommend to the graduate program director and the dean of Graduate Studies whether a thesis should move to oral examination (this stage must be completed no less than three months prior to the date set for examination).

17.5.4 Chair's responsibilities

It is the student's responsibility to ensure that all materials are prepared and assembled appropriately. Students should consult their research supervisor for specific regulations on the preparation and presentation of materials.

17.6.3.1 Examining Committee

The Examining Committee evaluates the academic merit of each student who defends a thesis and decides whether the student has satisfactorily passed the oral examination.

The Examining Committee consists of all members of the Supervisory Committee plus one external examiner (section 6.3.2). The committee is chaired by the graduate program director or designate.

17.6.3.2 External examiner

An external examiner is typically a faculty member outside the student's program. The external examiner cannot be an associate or adjunct member of the student's home faculty, nor have had any direct or indirect supervision of the student's thesis. This person will have considerable direct knowledge in the field of study of the subject matter.

Conflicts of interest must be avoided when recommending the names of external examiners to the dean of Graduate Studies. External examiners must not be teaching or supervising family members or relatives of the student, must not be closely linked in a personal or research capacity, nor shall they have shared financial interests with either the student or the research supervisor. Should the student's thesis contain chapters or sections of previously published works, the external examiner shall not have been involved in the review or editing of this material in any capacity.

When an external examiner from outside the university is recommended, a curriculum vitae and written rationale for the choice must be provided to the dean of Graduate Studies.

The external examiner is appointed by the dean of Graduate Studies, upon recommendation of the chair of the Supervisory Committee.

17.6.3.3 Approval for oral examination

Before an oral examination can be held, the Supervisory Committee must approve the thesis for examination (no more than one negative vote and/or abstention). The work must be submitted at least four weeks prior to the proposed oral examination.

The Examining Committee will meet at least one week prior to the scheduled date of examination and will determine if the work in its form and content is ready to be examined. If the work is deemed not ready for defence, the examining committee must provide to the candidate and the dean of Graduate Studies in writing its reasoning for disagreement within 72 working hours. In this instance, the oral examination shall be postponed for a period of time not exceeding one year from the scheduled date.

17.6.3.4 Examination procedure

Once the work has been deemed ready for examination, the chair of the Examining Committee shall make all necessary arrangements for sending the thesis to the external examiner, setting the examination date, and preparing the relevant documents needed at the time of the examination.

If a member of the Examining Committee finds that he or she is unable to attend the oral examination, the graduate program director should secure a suitable replacement. Should a suitable replacement not be found, the member is asked to submit his or her questions or concerns, to be read by the Examining Committee chair at the defence. In extraordinary circumstances, the examination will be rescheduled if one or more members of the Examining Committee are unable to attend.

The oral examination consists of a short presentation (15-20 minutes) by the candidate summarizing the main findings of the work. The presentation is an open event that can be attended by all interested parties at the discretion of the chair, but visitors may not remain for the rest of the proceedings.

Once the presentation has concluded, the student answers questions from members of the Examining Committee, including the committee chair. Questions must be related to the work done by the student for the thesis and be based on knowledge directly related to the material.

When the question period is over, the student is asked to leave the room and members of the Examining Committee will determine the outcome of the oral examination. The chair of the Examining Committee is a non-voting member, unless the chair's vote is needed to break a tie.

17.6.3.5 Outcomes of completion of the oral examination

The Examining Committee will render one of the following four decisions:

1) acceptable without change;
2) acceptable with minor change;
3) acceptable with major change; or
4) not acceptable.

1. Acceptable without change

A grade of pass is given if there is acceptance of the student's work with no required revisions by the committee as a whole.

2. Acceptable with minor change

A grade of pass is given if there is acceptance of the student's work with minor revisions to be completed within four weeks; revisions must not alter or drastically change the content of the thesis.

3. Acceptable with major change

A thesis which is not acceptable as a pass but not deemed a fail is referred for major revision. A thesis cannot be referred for a major revision and a second oral examination more than once; no further defence is permitted. In order to qualify for a decision of major revision, the work must meet one of the following requirements:

a) the committee agrees that the work requires considerable change in order to be deemed a pass; or

b) there is a majority vote in favour of major revision.

In the case of a major revision, the Examining Committee will reconvene within six months to continue the examination including the revisions. The revised thesis will be distributed within four to six weeks prior to the meeting to all members of the committee for review and assessment.

4. Not acceptable

A thesis is deemed failed if:

a) there is a majority vote to fail it; or

b) the thesis is deemed unacceptable after major revisions.

Detailed reasons for failure must be submitted by the chair of the Examining Committee to the dean of Graduate Studies, the graduate program director, and the candidate within two weeks.

17.6.4 Project or major paper evaluation

The research supervisor or co-supervisors, and at least one other reader appointed

Students should discuss with their research supervisor or faculty advisor whether any such conditions apply to the student's work. Nevertheless, an external organization or agency may not delay completion of a student's thesis, project or major paper. Only in special circumstances may an outside organization or agency be permitted to temporarily delay public dissemination of such student work.

If the work has commercial value, the student, in conjunction with other co-creators of the work, may wish to apply for a patent or other IP protection. Upon request, UOIT will assess the commercial value of the work and may agree to pay for these costs and manage the IP commercialization process on behalf of the creators. In all cases, commercialization activities require authorization from the Associate Proinfie per.1(k her an)24h

f) As part of the application form, provide a one-page statement of interest outlining their objectives in undertaking graduate study. Applicants may describe career aspirations/plans, specific research interests (if known), and experience relevant to their interests. If a potential thesis supervisor has been contacted, he/she must be identified in the statement of interest.

g) If required, submit a brief description of the courses listed on the official transcripts or provide a copy of the relevant calendar where they are listed.

The aforementioned requirements are the minimum required for entry into graduate

17.11 Student status

17.11.1 Classification of graduate students

Full-time: Graduate students are considered full time if they meet the following criteria:

a) pursue their studies as a full-time occupation;

b) formally identify themselves as full-time students on all documentation;

c) maintain regular contact with their faculty advisor or research supervisor, if applicable, and be geographically available and visit the campus regularly; and

d) if employed by UOIT, work no more than 10 hours per week per term for which they are registered as a full-time student.

Part-time: Graduate students who do not meet the above criteria are deemed part-time students. Part-time students may have course load restrictions. Students should consult the individual faculty with regard to the availability of part-time studies within their program.

17.11.2 Absences from studies

Graduate students are expected to be uninterruptedly registered in their designated program of study in order to support the timely completion of their degree. However, the university recognizes that under certain circumstances a student may need to absent themselves from regular study while maintaining their relationship with UOIT. Such circumstances must have sufficient cause and an official leave of absence must be requested through the Office of Graduate Studies and approved by the dean of Graduate Studies.

Acceptable circumstances include:

a) exceptional circumstances: medical, extraordinary demands of employment, compassionate circumstances;

b) maternity leave: available to students during or following a pregnancy; and

c) parental leave: available to students who face extraordinary demands in parental responsibilities, or whose duties require that they be absent from their studies for a period of time.

17.12 Financial aid

UOIT endeavours to help support graduate students in their programs by offering teaching assistantships, research assistantships, scholarships and bursaries. The Office of Graduate Studies and individual graduate program directors have the most up-to-date information on external and internal awards and other financial support.

For further details regarding scholarships, awards and bursaries, visit **www.uoit.ca**.

17.13 Registration policies and regulations

17.13.1 Session dates

Graduate students normally register for three academic semesters per year: fall (September to December), winter (January to April) and summer (May to August).

17.13.2 Registration

Students must be registered in all terms commencing with the term specified in their letter of acceptance and continuing until graduation. Failure to register in all terms will result in withdrawal from the program. If a student does not register within one term of acceptance, readmission to the program is required. All courses in the student's program must be approved by the graduate program director.

Registrar’s office for award of transfer credit. The minimum mark a student must achieve

17.13.13 Minimum average

In order to continue in a prescribed program of study at the graduate level, a student must maintain a minimum B- average overall.

17.13.14 Grade changes

After grades have been officially approved and released, any grade changes must be submitted in writing to the registrar. Grade changes may result from the submission of course work, the writing of a deferred examination, clerical errors, or an approved examination reread. All grade changes must be approved by the course instructor and the graduate program director or designate.

If a student's grade is not available when final grades are approved at the end of the term because of special circumstances, a special designation will be temporarily added to the student's record. If a deferred examination has been granted, a grade of DEF will be assigned. If a portion of the work required for the course is incomplete, a grade of INC may be recorded. These grades may satisfy prerequisites for further courses on a temporary basis, but not beyond the end of the subsequent term after which these grades revert to "F."

Graduate continuance courses will be assigned a grade of CO (continuance) and will not be included in grade point average calculations.

17.13.15 Grade appeals

Students may, with sufficient academic grounds, request that a final grade in a course be appealed (which will comprise only the review of specific pieces of tangible but not oral work). Grounds not related to academic merit are not relevant for grade appeals.

Students are normally expected to contact the course director first to discuss the grade received and to request that their tangible work be reviewed. Students should be aware that a request for a grade appeal may result in the original grade being raised, lowered or confirmed. The deadline for submitting grade appeals is three weeks after the release of final grade reports in any term.

If the condition of sufficient academic grounds has been met, the student shall lodge a request with the Registrar's office, which will contact the graduate program director and collect any fees incurred for the appeal. Students must specify the rationale for their appeal by making clear the component of the final grade upon which they seek appeal. The graduate program director will be responsible for ensuring that the work is reappraised by an appropriate faculty member, ensuring anonymity of both the student and the reappraiser, and for communicating the result of the appeal (including the reappraiser's comments) and the route of appeal to the student and the course director. The reappraiser will be given the nature of the assignment and the rationale for the original grade. It is expected that every effort will be made to render the decision within 30 days of the reviewer having received the work.

In the event that a student is still not satisfied with the final grade, or the course director is not available to review the work, a student may submit, in writing, a formal request for a grade appeal to the Graduate Studies Committee of Academic Council. Such appeals can only be considered on the grounds of procedural irregularity. Appeals must be submitted within 15 working days of notification of the decision. Appeals shall be heard by a panel of a minimum of three committee members, as determined by the dean of Graduate Studies, including at least one student and at least two faculty members. The appeal hearing shall be chaired by the dean of Graduate Studies or designate, who shall be counted as a panel member.

At the discretion of the relevant Faculty Committee, the student and/or the faculty member may be invited to meet with the panel to present their case(s) orally. The panel's decision will be taken in camera and it is expected that parties will be informed of the decision in writing within 20 working days of the filing of the appeal.

17.13.16 Conferral of degrees

Students expecting to graduate in any given term are required to contact the Registrar's office to complete the necessary forms. All applications must be received no later than February 4 for June graduation.

Degrees will be conferred at the time of Academic Council approval and notation of the degree awarded will be entered on the student's record. All students who are awarded a degree are eligible to attend the session of Convocation that immediately follows the date of conferral.

17.14 Degree requirements

All candidates pursuing a master's degree shall enrol in an advanced course of study approved by the graduate program director where the graduate student is registered. Each student must meet the program requirements laid out by the host faculty, while maintaining the required average to qualify to graduate in a timely manner.

17.14.1 Time limits

The minimum time allowed for full-time students to complete all requirements for a master's program is one year, and the maximum time is three years from the time of initial registration as a full-time student. Students registering on a part-time basis have a maximum of five years to complete the degree. Terms for which a student is granted a leave of absence shall not be included in these time limits.

Students needing to exceed the normal allotted time for completion of their program must formally request an extension to their program. Extension requests are to be made after the normal program length to the dean of Graduate Studies.

Students who do not complete degree requirements within the allotted time and have not been granted an extension may be required to withdraw from the program. Under exceptional circumstances and on the recommendation of the chair of the Supervisory Committee, a student who did not complete the degree requirements within the allotted time may be readmitted for one semester only to complete those requirements. Final approval for readmission must be granted by the dean of Graduate Studies.

17.15 Academic conduct

17.15.1 Code of Academic Conduct

Faculty members and students share an important responsibility to maintain the integrity of the teaching and learning relationship. This relationship is characterized by honesty, fairness, and mutual respect for the aims and principles of the pursuit of education. Academic misconduct impedes the activities of the university community, and is punishable by appropriate disciplinary action.

UOIT and its members have the responsibility of providing an environment which does not facilitate the inadvertent commission of academic misconduct. Students and faculty should be made aware of the actions which constitute academic misconduct, the procedures for launching and resolving complaints, and the penalties for commission of acts of misconduct.

17.15.1.1 Academic misconduct: offences

Academic misconduct includes, but is not limited to:

- unreasonable infringement on the freedom of other members of the academic community (i.e. disrupting classes or examinations, or harassing, intimidating or

- cheating on examinations, assignments, reports or other work used to evaluate student performance (cheating includes copying from another student's work or allowing one's own work to be copied, submitting another person's work as one's own, fabrication of data, consultation with an unauthorized person during an examination, and use of unauthorized aids);
- impersonating another student or allowing oneself to be impersonated for purposes of taking examinations, or carrying out laboratory or other assignments;
- plagiarism, which is the act of presenting the ideas, words, or other intellectual property of another as one's own (the use of other people's work must be properly acknowledged and referenced in all written material);
- obtaining by improper means examination papers, tests or similar materials, or the use or distribution of such materials to others;
- falsifying academic records, including tests and examinations, or submitting false credentials for the purpose of gaining admission to a program or course, or for any other purpose;
- misrepresentation of facts, whether written or oral, which may have an effect on academic evaluation; this includes making fraudulent health claims, obtaining medical or other certificates under false pretences, or altering certificates for the purposes of misrepresentation;
- submission of work when a major portion has been previously submitted or is being submitted for another course, without the express permission of all instructors involved; and
- professional unsuitability, such as behaviour inconsistent with the norms and expectations of the profession.

17.15.2 Procedure for resolution

With respect to all accusations of academic misconduct, students are presumed innocent until the contrary has been established. Decisions regarding the commission of academic misconduct are based on the balance of probabilities. A record of all allegations of misconduct, along with details of the resolution, will be entered into the central academic records kept by the Registrar's office.

Faculty, staff, or students who have reason to believe that an academic offence has been committed should report the matter promptly to the appropriate dean. A written report of the alleged offence shall be prepared, together with any relevant evidence.

The dean must decide promptly whether an attempt is to be made to resolve the matter informally; otherwise, the dean shall follow the procedures for formal resolution.

17.15.2.2 Formal resolution

When an attempt at informal resolution fails or is deemed inappropriate, the dean must inform the student in writing of the charge, the possible penalties, and a copy of the pertinent policy statement. The student will be given five working days to prepare a response. The dean will then meet with the student to hear the response. Both the dean and the student are entitled to be accompanied by up to two advisors at this meeting, provided 48 hours' advanced notice is given of the identity of the advisors.

The dean shall then conduct a thorough investigation of the allegations and response, to be concluded within 10 further working days, and notify the parties of the decision in writing. A copy of the decision will be provided to the dean of Graduate Studies and, on a need to-know basis, to administrative units (i.e. the graduate program director, other faculties, the registrar).

17.15.3 Penalties

If a student is deemed to have committed academic misconduct, one or more of the disciplinary penalties in the following list may be imposed. The severity of the penalty will be determined by the nature of the offence and the student's past record of conduct. Students found guilty of successive acts of misconduct will receive increasingly severe penalties.

The disciplinary penalties are:

- Resubmission of the piece of academic work in respect of which the misconduct was committed, for evaluation.
- A written reprimand, warning the student that the behaviour was unacceptable and that further misconduct will lead to additional penalties. A copy of the reprimand will be placed in the student's file, but no notation will appear on the academic record.
- Submission of a failing grade in an examination, test, assignment or course.
- Disciplinary probation for the remainder of the student's registration in his current program of study. A note to this effect will be placed in the student's file, but no notation will appear on the academic record. Any further offence will lead to a more severe penalty.
- Expunging of grades or revoking of degrees.
- Restraining orders or monetary restitution where appropriate in the case of

17.15.4 Termination of student enrolment

UOIT may terminate a student's enrolment in a graduate program on any of the following grounds:

- failure to achieve the required grades to continue as outlined in the degree regulations;
- failure to achieve the required grade on a comprehensive exam or project;
- failure to successfully complete a thesis, project or major paper;
- failure to register in any semester;
- failure to report, in advance, courses being taken at another institution;
- lack of progress toward completion of the program;
- recommendation of termination from the Supervisory Committee;
- failure to meet the conditions of admission;
- academic misconduct;
- professional unsuitability as defined by the program; or
- research misconduct and/or non-compliance with UOIT's research ethics guidelines or policies.

17.15.5 Academic appeals

All decisions of the university relating to academic conduct or program termination may be appealed to the Graduate Studies Committee of Academic Council. The student will be given 10 working days to gather new evidence and to submit a letter of appeal to the dean of Graduate Studies. Under normal circumstances, disciplinary penalties will not be imposed before an appeal is decided; however, official transcripts will not be issued during this period. Formal registration may be revoked where warranted. In the case of suspected professional unsuitability, a student may be withdrawn from classes, practica, work placements or other program-related activities pending resolution of the case.

A student may apply to the dean of Graduate Studies for continued attendance in classes and related activities while the appeal is being heard. In order for such a request to be granted, the dean of Graduate Studies must be satisfied that there would be no detrimental effect of such continued attendance. If the appeal is granted, formal registration will be reinstated.

17.15.5.1 Graduate academic appeals procedures

1) Appeals shall be heard by a panel of a minimum of three committee members, as determined by the dean of Graduate Studies, including at least one student and at least two faculty members.
2) The appeal hearing shall be chaired by the dean of Graduate Studies or designate, who shall be counted as one of the panel members.
3) Decisions with respect to the final disposition of an appeal will be carried by a simple majority of panel members hearing the appeal.
4) An appellant must have completed any prior levels of appeal open to him or her before filing a Notice of Appeal with the committee.
5) An appeal to the committee shall be commenced by filing a Notice of Appeal in the required form no later than 4 p.m. on the 10th working day after the date of the decision which is being appealed.
6) The chair may refuse to give a hearing to an appeal on the grounds that it is not within the jurisdiction of the committee.

7) The panel of the committee hearing an appeal may dismiss an appeal by unanimous decision after considering the written submissions notwithstanding a request for an oral hearing on the grounds that there is no real case for an appeal (i.e. the appeal is frivolous or vexatious and without merit).

8) In the Notice of Appeal, the appellant shall elect whether an oral hearing is requested. If no election is made, the appeal shall be determined in writing.

9) Where an appeal is to be determined in writing:

   i. As soon as reasonably practicable the panel shall provide a copy of the Notice of Appeal to the responding faculty;

   ii. The responding faculty has 10 working days to deliver to the panel a written

vii. Following the foregoing steps, the parties will withdraw and the panel will move in camera for its deliberations;

viii. The decision of the panel will be in writing and shall include the names of the panel and all who appeared, a brief summary of the issues on the appeal, the panel decision and reasons in support of the decision.

13) The time limits specified under these procedures may be extended by the chair at the request of the appellant or responding faculty, if reasonable grounds are shown for the extension.

The following UOIT policies and guidelines also apply to graduate studies:

- Student Conduct;
- Protection of Privacy and Access to Information;
- Research Guidelines;
- Intellectual Property; and
- Use of Turnitin.com's Plagiarism Detection System.

These can be found on **www.uoit.ca**.

17.16 Fees and Financial Assistance

17.16.1 Tuition and miscellaneous service fees

To view current tuition and miscellaneous service fees, visit **www.uoit.ca**.

17.16.2 Financial assistance

Various types of financial support are avaic1sru0.02891istance

Wilfred Fong, BSc, MLIS

John Friedlan, BSc, MBA, PhD, CA

Tripat Gill, BTech, MBA, PhD

William M. Goodman, BA, MA, PhD

Ali Grami, BSc, MEng, PhD, PEng
(Cross-appointment with the Faculty of Engineering and Applied Science)

Shahram S. Heydari, BEng, MEng, MAppSci, ABD

Patrick C.K. Hung, BSc, MPhil, MASc, PhD

Ying (Annie) Jiang, BA, MPhil, PhD

Bill Kapralos, BSc, MSc, PhD

Salma Karray, BBA, MSc, PhD

Jing (Jill) Lei, BSc, MSc, PhD

Zhenfeng Ma, BA, MA, ABD

Clemens Martin, Dipl-Ing (Master), Dr-Ing (PhD)
(Cross-appointment with the Faculty of Engineering and Applied Science)

Jennifer Percival, BMath, PhD

Bernadette Schell, BA, MSc, PhD

Miguel Vargas Martin, BCompSc, MEng, PhD
(Cross-appointment with the Faculty of Engineering and Applied Science)

Terry Y. S. Wu, BA, MA, PhD

Ying Zhu, BSc, MSc, PhD

17.17.4 Program information

The Master of Information Technology Security (MITS) program is a graduate professional program that prepares graduates to work in the high-demand information technology (IT) security industry. The program is designed to enable students to “learn how to learn” in the rapidly evolving IT security field. The program adopts a project method that provides students with the experience to apply core course materials to a substantial project in the workplace during their second year.

UOIT’s Master of Information Technology Security (MITS) program is the first of its kind

YEAR 1 (18 CREDIT HOURS)

MITS 5100G Law and Ethics of IT Security
MITS 5200G Advanced Communication Networks
MITS 5300G Operating Systems Security
MITS 5400G Secure Software Systems
MITS 5500G Cryptography and Secure Communications
MITS 5600G Elective*
Begin work on capstone project

YEAR 2 (18 CREDIT HOURS)

MITS 6100G Attack and Defence
MITS 6200G eCommerce Infrastructure Security
MITS 6300G IT Security Capstone Research Project I
MITS 6400G Biometrics/Access Control and Smart Card Technology
MITS 6500G Incident Handling, Recovery, Policies and Risk Management
MITS 6600G IT Security Capstone Research Project II

***Elective Courses**

MITS 5610G Special Topics in IT Security: Multimedia Technology

MITS 5620G Special Topics in IT Management e.g. Economics of Information Technology, Contemporary Management for IT Security Professionals, Risk Management for Information Systems, Nuclear Safety Management, Cybercrime

17.18 Graduate Studies: Faculty of Engineering and Applied Science

17.18.1 Contact information

Faculty of Engineering and Applied Science
University of Ontario Institute of Technology
2000 Simcoe Street North
Oshawa, Ontario, Canada, L1H 7K4

E-mail: **engineering@uoit.ca**
Telephone: 905.721.3268
Fax: 905.721.3370
Website: **http://engineering.uoit.ca**

17.18.2 Degrees offered

The Faculty of Engineering and Applied Science offers graduate programs leading to the degrees of Master of Applied Science (MASc) and Master of Engineering (MEng). The disciplines in which these degrees are offered are shown below.

Automotive Engineering

- Master of Applied Science (MASc)
- Master of Engineering (MEng)

Electrical and Computer Engineering

- Master of Applied Science (MASc)
- Master of Engineering (MEng)

Mechanical Engineering

- Master of Applied Science (MASc)
- Master of Engineering (MEng)

The MASc degree involves a thesis, whereas the MEng program has two options. The MEng-Project option consists of both courses and a project, while the MEng-Course option consists only of courses.

17.18.3 Admission requirements

In addition to the general admission requirements listed in section 17.10.3, the following are minimum admission requirements for the MASc and MEng programs:

- Completion of an undergraduate engineering degree in a relevant field from an accredited engineering program at a Canadian university, or its equivalent from a recognized institution.
- Overall academic standing of at least a B (GPA = 3.0 on a 4.0/4.3 scale), with a minimum B in the last two full-time years (four semesters) of undergraduate work or equivalent, although a B+ is preferred for MASc applicants.
- A minimum of two letters of reference from persons having direct knowledge of the applicant's academic competence. Academic references are preferred; however, professional references will be accepted. Letters of reference should come from individuals under whom the applicant has worked closely or studied. The quality of the letters will be assessed by the graduate committee of the Faculty of Engineering and Applied Science to ensure that relevant requirements have been met.
- Applicants must possess maturity and self-motivation. Close technical contact with a faculty member is an essential part of graduate education in engineering. Prior to being accepted into the program, MASc students must find a professor who specializes in the applicant's desired area of research and who is willing to act as a supervisor. MEng students who select the MEng-Project option must also find a professor who is willing to act as a project supervisor. In the event the MEng student cannot find a project supervisor, the student must transfer into the MEng-Course option.

17.18.4 Degree objectives and general degree requirements

The MASc programs involve a combination of courses and a thesis. These programs are research oriented and they provide excellent preparation for a doctoral degree.

The MEng programs are professional master's programs for upgrading and expanding technical skills and knowledge and have an emphasis on course-based learning, sometimes accompanied by a major project. The MEng programs have two options:

- MEng-Project consists of a combination of courses and a project, while
- MEng-Course consists of only courses.

Specific graduate course requirements for each degree are listed individually in sections 17.18.8 (Automotive Engineering), 17.18.9 (Electrical and Computer Engineering) and 17.18.10 (Mechanical Engineering). In addition to the required graduate courses, MASc and MEng-Project students may take one senior year engineering or applied science (i.e., a course with the prefix ENGR) undergraduate course in lieu of a graduate level course, provided they have not already taken a similar course during their undergraduate degree and the course is approved by both the student's supervisor and the faculty graduate programs director. MEng-course students may take up to two senior year engineering or applied science undergraduate courses in lieu of up to two graduate level courses, again provided they have not taken similar courses during their undergraduate degree and the courses are approved by the faculty graduate programs director. Students will be allowed to take graduate courses offered by other faculties, provided they are approved by the faculty graduate programs director. Students who are uncertain about the academic background needed for a graduate course should consult the course instructor before registering for the course.

17.18.5 Part-time studies

To facilitate access to all potential students, part-time studies will be permitted. Engineers in local industries, in particular, may wish to access a MEng program through part-time studies.

17.18.6 Degree completion time limit and residency requirements

The maximum time for completion of the MASc or MEng degree is three years for full-time students, measured from the date the student entered the program, or five years for students with part-time status. MASc students must spend a minimum of one academic year of full-time study in residence at the University of Ontario Institute of Technology. No financial support will be available from the faculty after two years.

17.18.7 Financial assistance

Qualified full-time MASc students are eligible for financial support through research assistantships funded by their faculty supervisors' research grants, scholarships such as NSERC and OGS, or other merit scholarships and/or teaching assistantships. MEng students are expected to be self-supporting.

17.18.8 Automotive Engineering

17.18.8.1 Graduate faculty

Michael Bennett, BS, MA, PhD

Peter Berg, Dipl-Phys, PhD (Faculty of Science)

Ibrahim Dincer, BSc, MSc, PhD

Mikael Eklund, BSc, MSc, PhD

Ebrahim Esmailzadeh, BSc (Hons)(Eng), MPhil, PhD, PEng, CEng, FCSME, FASME, FIMechE, SMIEEE

Kamiel Gabriel, BSc, MSc, MBA, PhD, PEng

Ali Grami, MSc, MEng, PhD, PEng, SMIEEE
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Yuping He, BASc, MASc, PhD

Ramiro Liscano, BScEng, MScEng, PhD, PEng, SMIEEE

Lixuan Lu, BESc, MESc, PhD
(Cross-appointment with the School of Energy Systems and Nuclear Science)

Richard Marceau, BEng, MScA, PhD, PEng, FCAE

Clemens Martin, Dipl-Ing (Master), Dr-Ing (PhD)
(Cross-appointment with the Faculty of Business and Information Technology)

Greg Naterer, BMath, MASc, PhD, PEng, FCSME

Scott Nokleby, BEng, MASc, PhD, PEng

Remon Pop-Iliev, BSc, MASc, PhD, PEng

Bale Reddy, BTech, MTech, PhD

Jing Ren, BA, MSc, PhD

Ghaus Rizvi, ME, MS, MASc, PhD, PEng

Greg Rohrauer, DEC, BEng, PhD, PEng

Marc Rosen, BASc, MASc, PhD, PEng, FCSME, FEIC, FASME, FIEF

Shahram Shahbazpanahi, BSc, MSc, PhD, PEng

Miguel Vargas Martin, BCompSc, MEng, PhD
(Cross-appointment with the Faculty of Business and Information Technology)

Dan Zhang, BASc, MASc, PhD, PEng

Ying Zhu, BSc, MSc, PhD
(Cross-appointment with the Faculty of Business and Information Technology)

17.18.8.2 General information

The MASc and MEng programs in Automotive Engineering provide students with a detailed understanding of advanced technologies and processes related to automotive systems. These programs allow students to study all of the main areas associated with automotive systems. This includes scientific principles, analysis techniques, and design methodologies. The programs are also designed to provide students with the broad and advanced education necessary for productive careers in the public or private sectors, as well as academia. Students will develop skills necessary for clear communication and responsible teamwork and to inspire professional attitudes and ethics. This will prepare them for modern work environments and lifelong learning.

Students having undergraduate degrees in mechanical engineering, electrical engineering, or other fields of engineering or science may apply to the Automotive Engineering graduate programs. The multi-disciplinary nature of automotive systems, ranging from manufacturing and powertrains to electrical power/control systems and others, provides opportunities for students to gain broad exposure to various disciplines at an advanced graduate level.

17.18.8.3 Research areas

The automotive industry includes automotive design, manufacturing, parts supply and servicing. The manufacturing component is particularly important to the Canadian economy and relies heavily on a range of engineering disciplines (mechanical, electrical, energy, components, software, chemical, materials, and manufacturing). Advances in automotive technologies and processes are key to maintaining and increasing the competitiveness of the automotive industry. Faculty members are involved in research in a variety of areas. These include:

- Vehicle dynamics
- Fuel cells and hydrogen
- Automotive aerodynamics
- Noise, vibrations and harshness
- Automotive materials and manufacturing
- Chassis design
- Automotive electrical and software systems
- Automotive modeling, simulation, optimization and design
- Alternative fuels
- Hybrid vehicles
- Automotive control systems
- Vehicle emissions

Students enrolled in our graduate programs will have access to our state-of-the-art research facilities and laboratories, including the Automotive Centre of Excellence (expected to open in 2008).

17.18.8.4 Degree requirements

Master of Applied Science (MASc) – Automotive Engineering

The main objective of the MASc program in Automotive Engineering is to prepare students for careers in research, development and advanced engineering. Graduates of the program can work as engineers in R&D and other areas in the automotive sector, other advanced technology companies, government agencies. They are also well prepared to continue their education and pursue a PhD degree. The objectives of the MASc program are achieved through a combination of course work, supervised research, a research seminar, and a research thesis.

General MASc degree requirements are stipulated in section 17.18.4. In addition, a student must complete five courses for a total of 15 credits and a thesis worth 15 credits for the MASc program in Automotive Engineering. The course ENGR 5300G (Automotive Engineering) is a required course for all automotive engineering graduate students. It gives an advanced overview of the automobile as an integrated system. Students must also select at least two additional courses from the group of ENGR 53xxG courses (focusing on automotive engineering), plus remaining electives from the series of ENGR 50xxG, 51xxG, 52xxG, 56xxG, 57xxG, 58xxG and 59xxG courses. In addition to these five graduate courses, students must successfully complete ENGR 5003G – Seminar.

Master of Engineering (MEng) – Automotive Engineering

The main objective of the MEng program in Automotive Engineering is to provide the opportunity for engineers in industry to upgrade and expand their skills. Graduates of the program will apply their education to various advanced technologies and processes in the automotive sector and other industries. The objective of the MEng program is achieved through either a combination of course work and a project or solely course work, depending on which option the student selects. MEng students will have exposure to research through projects included in most of the graduate courses.

General MEng degree requirements are stipulated in section 17.18.4. In addition, for the MEng-Project option, a student must complete seven courses for a total of 21 credits and a project worth nine credits. This includes the required course (ENGR 5300G), at least three other courses from the ENGR 53xxG group and remaining courses from the electives. For the MEng-Course option, a student must complete 10 courses, worth a total of 30 credits. In this option, the student requires ENGR 5300G, plus at least three other courses from the ENGR 53xxG group and the remaining elective courses.

The core area of automotive systems (ENGR 53xxG) focuses on courses specifically aimed at engineering systems for automobiles, rather than general applications to other mechanical, electrical and non-automotive systems. It is beneficial for students to take some of the remaining electives from the same concentration area. However, it is not required that all electives are completed from a single concentration area, as it is also valuable for students to receive breadth of knowledge at the graduate level.

17.18.8.5 Courses

Courses offered in the MASc and MEng programs are sub-divided into an automotive core area (ENGR 53xxG) and specific concentration areas of energy and thermofluids (ENGR 51xxG), mechatronics and manufacturing (ENGR 52xxG), communications and signal processing (ENGR 56xxG), software (ENGR 57xxG) and electronics and control systems (ENGR 58xxG, ENGR 59xxG). The following list shows all courses relevant to the Automotive Engineering graduate programs.

ENGR 5001G MASc Thesis
ENGR 5002G MEng Project
ENGR 5003G Seminar
ENGR 5004G Directed Studies
ENGR 5005G Special Topics
ENGR 5010G Advanced Optimization
ENGR 5011G Advanced Engineering Design
ENGR 5012G Advanced and Smart Materials

Concentration Area - Energy and Thermofluids:
ENGR 5100G Advanced Energy Systems
ENGR 5101G Thermal Energy Storage
ENGR 5102G Fuel Cells and Hydrogen Systems
ENGR 5120G Advanced Fluid Mechanics
ENGR 5121G Advanced Turbo Machinery

ENGR 5122G Computational Fluid Dynamics
ENGR 5140G Advanced Heat Transfer
ENGR 5141G Heat Exchanger Design and Analysis
ENGR 5160G Advanced Thermodynamics
ENGR 5161G HVAC and Refrigeration Systems Design and Analysis

Concentration Area - Mechatronics and Manufacturing:

Mark Green, Faculty of Science, BSc, MSc, PhD

Patrick Hung, Faculty of Business and Information Technology, BSc, MPhil, MASc, PhD

Ramiro Liscano, BScEng, MScEng, PhD, PEng, SMIEEE

Lixuan Lu, BESc, MESc, PhD
(Cross-appointment with the School of Energy Systems and Nuclear Science)

Richard Marceau, BEng, MScA, PhD, PEng, FCAE

Clemens Martin, Dipl-Ing (Master), Dr-Ing (PhD)
(Cross-appointment with the Faculty of Business and Information Technology)

Scott Nokleby, BEng, MASc, PhD, PEng

Jing Ren, BA, MSc, PhD

Marc Rosen, BASc, MASc, PhD, PEng, FCSME, FEIC, FASME, FIEF

Shahram Shahbazpanahi, BSc, MSc, PhD, PEng

Miguel Vargas Martin, BCompSc, MEng, PhD
(Cross-appointment with the Faculty of Business and Information Technology)

Dan Zhang, BASc, MASc, PhD, PEng

Ying Zhu, BSc, MSc, PhD
(Cross-appointment with the Faculty of Business and Information Technology)

17.18.9.2 General information

The MASc and MEng programs in Electrical and Computer Engineering allow a student to study in all areas associated with electrical and computer engineering. These areas include electrical, electronics, computer, telecommunications, biomedical, power generation and related industries. The discipline focuses on the design and manufacture of electrical and computer technologies and their component parts, as well as on the integration of components into complex systems. This industrial sector is continually advancing and giving rise to new opportunities. Some examples of technological challenges include opportunities to develop more advanced telecommunications networks (including wireless and the Internet), more powerful computers (with more memory and lower cost), and electric vehicles.

17.18.9.3 Research areas

The Faculty of Engineering and Applied Science undertakes innovative research in electrical, computer and communications fields. Faculty research in this area includes satellite development and design, wireless and multimedia communications, and server-based software components of Internet technology. Activities are also being

Students enrolled in our graduate programs will have access to our state-of-the-art research facilities and laboratories.

17.18.9.4 Degree requirements

Master of Applied Science (MASc) - Electrical and Computer Engineering

The objective of the MASc program in Electrical and Computer Engineering is to prepare students for careers in research, development and advanced engineering, in disciplines involving electrical and computer engineering. Graduates of the program will be able to work as engineers in R&D and other areas in advanced technology companies or government agencies, or to continue their education and pursue a doctorate degree. The objectives of the MASc program are achieved through a combination of course work, supervised research, a research seminar, and a research thesis.

General MASc degree requirements are stipulated in section 17.18.4. A student must complete five courses for a total of 15 credits and a thesis worth 15 credits for the MASc program in Electrical and Computer Engineering. Also, the student must successfully complete ENGR 5003G - Seminar.

Master of Engineering (MEng) - Electrical and Computer Engineering

The objective of the MEng program in Electrical and Computer Engineering is to provide the opportunity for engineers in industry to upgrade and expand their skills, including developing research skills. Graduates of the program will be able to apply what they have learned in a variety of applications in industry, government, and academia. The objective of the MEng program is achieved through either a combination of course work and a project or solely course work, depending on which option the student selects. MEng students will have exposure to research through projects included in most of the graduate courses.

General MEng degree requirements are stipulated in section 17.18.4. For the MEng-Project option, a student must complete seven courses worth a total of 21 credits and a project worth nine credits. For the MEng-Course option, a student must complete 10 courses worth a total of 30 credits.

17.18.9.5 Courses

Graduate courses offered are listed below. Courses related to the Communications and Signal Processing areas are numbered as ENGR 56xxG. Courses related to the Software and Computer Systems areas are numbered as ENGR 57xxG. Courses related to Electronics and Mechatronics areas are numbered as ENGR 58xxG. Courses related to Control Systems and Power Systems areas are numbered as ENGR 59xxG.

ENGR 5001G MASc Thesis
ENGR 5002G MEng Project
ENGR 5003G Seminar
ENGR 5004G Directed Studies
ENGR 5005G Special Topics
ENGR 5010G Advanced Optimization

ENGR 5610G Stochastic Processes
ENGR 5620G Digital Communications
ENGR 5630G Statistical Signal Processing
ENGR 5640G Advanced Wireless Communications
ENGR 5650G Adaptive Systems and Applications
ENGR 5660G Communication Networks
ENGR 5670G Cryptography and Secure Communications

ENGR 5710G Network Computing
ENGR 5720G Pervasive and Mobile Computing
ENGR 5730G Algorithms and Data Structures
ENGR 5740G User Interface Design
ENGR 5750G Software Quality Management
ENGR 5760G Software Metrics
ENGR 5770G Service Computing
ENGR 5780G Advanced Computer Architecture

ENGR 5850G Analog Integrated Circuit Design
ENGR 5860G Digital Integrated Circuit Design

ENGR 5910G Embedded Real-Time Control Systems
ENGR 5920G Analysis and Control of Nonlinear Systems
ENGR 5930G Adaptive Control
ENGR 5940G Intelligent Control Systems
ENGR 5950G Computational Electromagnetics
ENGR 5960G Power System Operations, Analysis and Planning
ENGR 5970G Power Electronics
ENGR 5980G Advances in Nuclear Power Plant Systems

Courses will be offered on the basis of demand with the expectation that most courses will be offered at a minimum of once every two years.

17.18.10 Mechanical Engineering

17.18.10.1 Graduate faculty

Michael Bennett, BS, MA, PhD

George Bereznai, School of Energy Systems and Nuclear Science, ME, MEng, PhD

Peter Berg, Dipl-Phys, PhD (Faculty of Science)

Ibrahim Dincer, BSc, MSc, PhD

Ebrahim Esmailzadeh, BSc (Hons)(Eng), MPhil, PhD, PEng, CEng, FCSME, FASME, FIMechE, SMIEEE

Kamiel Gabriel, BSc, MSc, MBA, PhD, PEng

Rao Gorantla, Adjunct Professor, CEng, BEng, MS, PhD

Ali Grami, MSc, MEng, PhD, PEng, SMIEEE
(Cross-appointment with the Faculty of Business and Information Technology)

Lixuan Lu, BESc, MESc, PhD
(Cross-appointment with the School of Energy Systems and Nuclear Science)

Richard Marceau, BEng, MScA, PhD, PEng, FCAE

Clemens Martin, Dipl-Ing (Master), Dr-Ing (PhD)
(Cross-appointment with the Faculty of Business and Information Technology)

Greg Naterer, BMath, MASc, PhD, PEng, FCSME

Eleodor Nichita, School of Energy Systems and Nuclear Science, BSc, MSc, PhD

Scott Nokleby, BEng, MASc, PhD, PEng

Miguel Vargas Martin, BCompSc, MEng, PhD
(Cross-appointment with the Faculty of Business and Information Technology)

Edward Waller, School of Energy Systems and Nuclear Science, BSc, MScE, PhD, PEng

Dan Zhang, BASc, MASc, PhD, PEng

17.18.10.2 General information

The Master's programs in Mechanical Engineering allow a student to study all of the main areas associated with mechanical engineering. In addition, the programs feature two primary fields of study in which students can focus, and which address key technical areas for the future that are expected to be in high demand by employers:

- Energy and thermofluids engineering
- Mechatronics and manufacturing engineering.

A student can choose not to focus, but rather to cover many facets of the broad discipline of mechanical engineering. Topics can vary widely, from robotics, automation and mechatronics, through mechanics, controls and computer-aided design, to thermofluids and heat transfer.

Mechanical engineering is often interdisciplinary, overlapping significantly with such disciplines as electrical, computer and software engineering, and opportunities exist for graduate students to explore these areas.

17.18.10.3 Research areas

A range of research activities are being undertaken in the faculty, reflecting the breadth of mechanical engineering.

Research on manufacturing technologies focuses on the processes, methods and technologies involved in manufacturing and their applications. Some of the faculty's research activities in these fields include the development of advanced cellular materials and processes for their manufacture, as well as substitutes for biological materials such as bone and wood. The use of intelligent robots to assist in manufacturing is also of interest. Furthermore, faculty interests include lean, flexible and high-performance manufacturing systems, and computer-integrated manufacturing.

In the fields of thermodynamics, energy, heat transfer and fluid mechanics, the objective of much of the research is to improve energy systems and reduce their environmental impacts. The research includes investigations of advanced energy technologies, efficiency improvement methods, alternative energy sources, and environmentally conscious engineering.

Research in the area of dynamics, vibration and noise is critical to many applications where dynamic systems must be understood and controlled for maximal benefit. Important applications exist in the automotive and aerospace fields, and many others. The faculty's research in these areas includes active control of vibration and sound, non-linear dynamics and chaos. The control of robotic systems is also of interest.

Ongoing research on robotics, automation and controls is leading to frequent and numerous technological advances. Some of the faculty's research activities in these fields include the development of high-performance, visually guided robots and studies on the control of engineering devices. Applications are ongoing of advanced control systems in a range of fields.

Extensive faculty research is being carried out into the mechanics of solids and structures. This research includes the characterization and analysis of materials and structures for mechanical and automotive applications. Investigations are planned into the vibrations and buckling of structures, thermal stresses, creep and plasticity. Computational mechanics research is being applied to devices.

17.18.10.4 Degree requirements

Master of Applied Science (MASc) - Mechanical Engineering

The objective of the MASc program in Mechanical Engineering is to prepare students for careers in research, development and advanced engineering. Graduates of the program will be able to work as engineers in R&D and other areas, in advanced technology companies or government agencies, or continue their education and pursue a doctorate degree. The objectives of the MASc program are achieved through a combination of course work, supervised research, a research seminar, and a research thesis.

General MASc degree requirements are stipulated in section 17.18.4. In addition, a student must complete five courses for a total of 15 credits and a thesis worth 15 credits for the MASc program in Mechanical Engineering. Also, the student must successfully complete ENGR 5003G - Seminar.

Master of Engineering (MEng) - Mechanical Engineering

The objective of the MEng program in Mechanical Engineering is to provide the opportunity for engineers in industry to upgrade and expand their skills, including developing research skills. Graduates of the program will be able to apply what they have learned in a variety of applications in industry, government, and academia. The objective of the MEng program is achieved through either a combination of course work and a project or solely course work, depending on which option the student selects. MEng students will have exposure to research through projects included in most of the graduate courses.

General MEng degree requirements are stipulated in section 17.18.4. In addition, for the MEng-Project option, a student must complete seven courses worth a total of 21 credits and a project worth nine credits. For the MEng-Course option, a student must complete 10 courses worth a total of 30 credits.

17.18.10.5 Courses

In the list of ENGR graduate course descriptions below, courses related to the Energy and Thermofluids Engineering field are numbered as ENGR 51xxG. Courses related to the Mechatronics and Manufacturing Engineering field are numbered as ENGR 52xxG. Courses numbered ENGR 50xxG are common to both fields.

ENGR 5003G Seminar
ENGR 5004G Directed Studies
ENGR 5001G MASc Thesis
ENGR 5002G MEng Project
ENGR 5003G Seminar
ENGR 5004G Directed Studies
ENGR 5005G Special Topics
ENGR 5010G Advanced Optimization
ENGR 5011G Advanced Engineering Design
ENGR 5012G Advanced and Smart Materials

ENGR 5100G Advanced Energy Systems
ENGR 5101G Thermal Energy Storage
ENGR 5102G Fuel Cells and Hydrogen Systems
ENGR 5120G Advanced Fluid Mechanics
ENGR 5121G Advanced Turbo Machinery
ENGR 5122G Computational Fluid Dynamics
ENGR 5140G Advanced Heat Transfer
ENGR 5141G Heat Exchanger Design and Analysis
ENGR 5160G Advanced Thermodynamics
ENGR 5161G HVAC and Refrigeration Systems Design and Analysis

ENGR 5180G Advanced Nuclear Engineering
ENGR 5181G Advanced Radiation Engineering

ENGR 5221G Computer-Integrated Manufacturing
ENGR 5222G Polymers and Composite Processing
ENGR 5223G Advanced Manufacturing Processes and Methodologies
ENGR 5240G Advanced Dynamics
ENGR 5241G Advanced Mechanics of Materials
ENGR 5242G Advanced Vibrations
ENGR 5260G Advanced Robotics and Automation
ENGR 5261G Advanced Mechatronics: MEMS and Nanotechnology
ENGR 5262G Manipulator and Mechanism Design
ENGR 5263G Advanced Control

17.19 Graduate Studies: Faculty of Science

17.19.1 Contact information

Faculty of Science
University of Ontario Institute of Technology
Science Building UA4000
2000 Simcoe Street North
Oshawa, Ontario, Canada, L1H 7K4

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Telephone: 905.721.3050
Fax: 905.7213304
Website: **http://www.science.uoit.ca**

17.19.2 Degrees offered

- Master of Science (MSc) in Applied Bioscience
- Master of Science (MSc) in Materials Science
- Master of Science (MSc) in Modelling and Computational Science

17.19.3 Master of Science (MSc) in Applied Bioscience

17.19.3.1 Program faculty

Emma Bartfay, BSc, MSc, PhD

Wally Bartfay, RN, MN, PhD

Dario Bonetta, BSc, MSc, PhD

Carolyn Byrne, MHSc, PhD

Sean Forrester, BSc, MSc, PhD

Julia Green-Johnson, BSc (Hons), MSc, PhD

Douglas Holdway, BSc (Hons), MSc, PhD

Holly Jones-Taggart, BSc (Hons), PhD

Fedor Naumkin, MSc, PhD

Krisztina Paal, BSc, PhD

Otto Sanchez, MD, MSc, PhD

Janice Strap, BSc, MSc, PhD

17.19.3.2 Program information

The Master of Science (MSc) in Applied Bioscience program will be launched in September 2007, subject to all necessary governmental approvals. The objectives of the MSc program will be achieved through a combination of course work, supervised research, a research seminar, and a research thesis. The expected length of time for degree completion is 24 months.

The primary objective of the Applied Bioscience program is to train students to become high-quality researchers at the interface between chemistry and biology. The Faculty of Science, with no traditional departments, will expose students to interdisciplinary research, allowing them to gain experience working successfully within collaborative networks. The program will equip students with a wide array of both practical and conceptual scientific skills that will prepare them for leadership roles in the life sciences. These goals will be achieved through independent research and rigorous interdisciplinary coursework. The program will bring together students and faculty from a variety of scientific backgrounds, which will further enrich the learning experience of the students. In addition, in keeping with the UOIT's strategic plan, research will be aimed at creating innovations that will improve the lives of Canadians.

The two main fields of research in the Applied Bioscience program (ABP) are Biomolecular Science and Environmental Science and Health (ESH). Biomolecular Science focuses on the use of molecular and cellular tools to investigate new approaches for combating infectious organisms and disease; drug resistance; biomaterials and bio-based products; the mode of action of pharmaceuticals; and potential drug targets, drug formulations and site-specific drug delivery. The field of Environmental Science and Health includes an emphasis on environmental toxicology, whose goal is to determine the implications of external toxicants on the health of organisms and the discovery of indicators for environmental problems and methods to lessen human exposure to toxicants. In addition, researchers in the ABP will investigate the pathophysiology of environmental disorders and the micro and macro environmental factors causing cancer.

The Applied Bioscience program is a unique collaborative program involving faculty in the Faculties of Science and Health Sciences at UOIT. The participating faculty members are made up of an interdisciplinary network of chemists, biologists and health scientists. Graduate students participating in this program will therefore be exposed to interdisciplinary research while they undertake their thesis projects in laboratories at UOIT.

17.19.3.3 Admission requirements

In addition to the general admission requirements described in section 17.10.3, students applying to the Applied Bioscience program must meet the following program-specific requirements:

1. An honours undergraduate degree in biology, chemistry or life or health sciences, with a minimum grade point average of a second class B average (3.0 on 4.3) in the last two years (4 semesters) of their respective BSc (Hons) program.
2. To assist with the assessment of the application, the student should provide relevant course numbers, titles, brief descriptions of course content, textbooks used and/or chapters covered, and grades received.
3. Admission depends on the availability of a research supervisor. Students should contact the graduate program director before formally applying.

17.19.3.4 Degree completion time limit and residence requirements

Student's who enrol in the Applied Bioscience program are expected to complete the program in two years. All program requirements must be completed on site at UOIT.

17.19.3.5 Degree requirements

Students must successfully complete three, three-credit courses, including APBS 6010G (Research in Applied Bioscience). In addition, they must complete the required non-credit course APBS 6030G (Seminar in Applied Bioscience) and prepare and orally defend a thesis (APBS 6020G) and receive a pass.

sub-fields, including nanotechnology, electronic materials, surface science, biomaterials, and materials characterization. The program provides both a broad and integrated overview of materials science and the opportunity for in-depth study of a particular problem emphasizing either theory or experiment, under the guidance of a thesis advisor and a multi-disciplinary team of faculty from UOIT and Trent University. The program will be comprised of coursework and a thesis.

17.19.4.3 Admission requirements

Students applying to the program must meet the general admission requirements listed in section 17.10.3. In addition, they must meet the following program-specific requirements.

Students are admitted to the MSc program in Materials Science after having earned an honours BSc degree in chemistry, physics or engineering, or holding equivalent qualifications as judged by the admissions committee. This committee is made up of the graduate program directors and one faculty member from each of the two universities. Prospective students must hold at least a B average (75% or greater) in the last two years of their BSc program, be well recommended, and be accepted by a prospective supervisor who guarantees RA support for the duration of the student's program.

International students whose first language is other than English must meet the university's language requirements or achieve the minimum score in an approved English Language Proficiency Test. The recommended scores for English Language Proficiency Tests are slightly higher than those required by other UOIT programs. These are listed below:

TOEFL (computer based)	237
TOEFL (paper based)	580
IELTS	7
MELAB	85

The student must meet with his/her Supervisory Committee within the first six months of registration, and subsequently at least once every six months. The committee consists of the student's research supervisor and at least two other faculty members in the program; each Supervisory Committee must include at least one faculty member from each institution. While one meeting in a year must be a formal one, the other meeting may be held informally; in the latter case, in addition to the student and the supervisor, the meeting must involve at least one other member of the committee. A Supervisory Committee meeting must be held if a student requests it and the graduate program director approves.

An acceptable thesis on a research topic must be submitted. Detailed specifications of the format of the thesis are available from the appropriate graduate office. Acceptance of the thesis requires the approval of an Examining Committee following an oral defence of the thesis.

17.19.4.6 Courses

Core Courses
MTSC 6000G (non-credit) Graduate Seminar in Science Communication I
MTSC 6100G (non-credit) Graduate Seminar in Science Communication II
MTSC 6010G Physics and Chemistry of Materials
MTSC 6020G Advanced Topics in Materials Science
MTSC 6050GMSc Thesis

Elective Courses
MTSC 6110G Thermodynamics and Statistical Mechanics of Materials
MTSC 6120G Theory of the Solid State
MTSC 6130G Surface Science and Catalysis
MTSC 6140G Experimental Techniques in Materials Characterization
MTSC 6240G Biomaterials
MTSC 6250G Polymer Science & Engineering
MTSC 6260G Topics in Applied Materials Science I
MTSC 6270G Topics in Applied Materials Science II
MCSC 6170G Computational Chemistry
MCSC 6180G Computational Physics
MCSC 6280G Advanced Topics in Computational Science

17.19.4.7 Proposed progression through program

Year 1, Semester 1
Two three-credit courses - MTSC 6010G Physics and Chemistry of Materials and one elective
MTSC 6000G Graduate Seminar in Science Communication I
Begin thesis research

Year 1, Semester 2
Two three-credit courses - MTSC 6020G Advanced Topics in Materials Science and one elective
MTSC 6100G Graduate Seminar in Science Communication II
Thesis Research

Year 1, Semester 3
Thesis Research

Year 2, Semester 1
Thesis Research
and MTSC 6000G Graduate Seminar in Science Communication I

Year 2, Semester 2
MTSC 6050G MSc Thesis
and MTSC 6100G Graduate Seminar in Science Communication II

17.19.5 Master of Science (MSc) in Modelling & Computational Science

17.19.5.1 Program faculty

Dhavide Aruliah, BSc, MS, PhD

Emma Bartfay, Faculty of Health Sciences, BSc, MMath, PhD

Peter Berg, Physik Diplom, PhD

Sean Bohun, BSc, MSc, PhD

Pietro-Luciano Buono, BSc, MSc, PhD

Anatoli Chkrebtii, BSc, MSc, PhD

Mark Green, BSc, MSc, PhD

Brian Ikeda, School of Energy Systems and Nuclear Science, Ph.D

Greg Lewis, BSc, MSc, PhD

Lixuan Lu, School of Energy Systems and Nuclear Science, BES, MES, PhD

Fedor Naumkin, MSc, PhD

Eleodor Nichita, School of Energy Systems and Nuclear Science, BSc, MSc, PhD

William R. Smith, BASc, MASc, MSc, PhD

Anthony Waker, School of Energy Systems and Nuclear Science, BSc, PhD

Ed Waller, School of Energy Systems and Nuclear Science, BSc, MScE, PhD

17.19.5.2 Program information

The Faculty of Science offers a graduate program leading to the degree of Master of Science (MSc) in Modelling and Computational Science. Mathematical modelling is an important tool in the study of several physical and biological phenomena. The new emerging field of computational science combines the implementation of mathematical models, computer algorithms, and knowledge in a particular area of application, in order to provide an additional tool for the study of phenomena, and in particular to facilitate the study of problems that are intractable or difficult to study using conventional approaches. Mathematical models and computational science are powerful methods to study problems such as atmospheric phenomena, climate variability, molecular dynamics, protein folding, option pricing in financial markets, and many other physical, biological, medical, environmental and economic problems. The MSc in Modelling and Computational Science takes advantage of the interdisciplinary nature of the Faculty of Science and the School of Energy Systems and Nuclear Science to offer students a course of study that will introduce them to all aspects of the modelling process. UOIT's membership in the SHARCNET (Shared Hierarchical Research Computer Network) provides access to state-of-the-art computational facilities.

A survey of industrial experts recently undertaken by the Canadian Advanced Technology Alliance (CATA, the largest business development association dedicated to making Canadian organizations world-class producers and users of advanced technology) found that there is a critical need for Highly Qualified Personnel (HQP) who possess skills and knowledge in High-Performance Computing (HPC). Many companies from all sectors acknowledged this need for HQP, indicating the significant extent of the skill requirement. The jobs in these areas are expected to be almost exclusively within interdisciplinary groups that perform a number of different interrelated tasks; thus, problem-solving ability and the ability to communicate and work with people from a variety of disciplines will be critical. Graduates of the MSc in Modelling and Computational Science graduates will be in an excellent position to fill these positions and to contribute to the province's and the country's economy.

Depending on the background of the student, completion of the MSc in Modelling and Computational Science (in either the thesis or the course-based option) will also prepare the student to enter PhD programs in applied mathematics, physics, chemistry and engineering.

17.19.5.3 Admission requirements

In addition to the general admission requirements listed in section 17.10.3, each applicant to the MSc program in Modelling and Computational Science must have earned an honours undergraduate degree in mathematics, science, or engineering with a minimum average grade of B (3.0 on 4.3 scale). At a minimum, the student must be acquainted with basic numerical methods, linear algebra, differential equations, and possess some computing skills. To assist with the assessment of the application, the student should provide relevant course numbers, titles, brief descriptions of course contents, text books used and/or chapters covered, and the grades received, if applicable. Admission depends on the availability of a research supervisor.

17.19.5.4 Degree completion time limit and part-time studies

Student's who enrol in the MSc in Modelling and Computational Science program are expected to complete the program in five consecutive semesters. All program requirements must be completed on site at UOIT. Part-time students must gain approval from their faculty advisor regarding their study plan.

17.19.5.5 Degree requirements

MSc thesis-based option – Students must successfully complete 30 credits, including six three-credit courses and a 12-credit thesis. The six three-credit courses must include three core courses and three elective courses, and a minimum grade of B- must be achieved in each course. No more than one elective course may be a fourth-year undergraduate esearch supervisor.

MSc thesis-based option6eP17 ap ourrt-ssfthree57credi(Tent toied ma-ssfthree9rogram)]Yils 1ch

Year 2, Semester 1
Thesis research

Year 2, Semester 2
MSCS 6001G MSc Thesis

Note: Required non-credit course in year two - MCSC 6000G Graduate Seminar in Modelling and Computational Science

Course-based option

Year 1, Semester 1
MCSC 6010G Mathematical Modelling
MCSC 6020G Numerical Analysis
One elective*

Year 1, Semester 2
MCSC 6030G High-Performance Computing
Two electives*

Year 1, Semester 3
Research Project

Year 2, Semester 1
Two electives*
Research Project

Year 2, Semester 2
MSCS 6002G MSc Research Project

***Elective courses**

MCSC 6060G Advanced Statistical Mechanics (cross-listed with PHY4010U)

MCSC 6070G Advanced Quantum Mechanics (cross-listed with PHY4020U)

MCSC 6120G Numerical Methods for Ordinary Differential Equations

MCSC 6125G Numerical Methods for Partial Differential Equations

MCSC 6140G Dynamical Systems and Bifurcations

MCSC 6150G Fluid Dynamics

MCSC 6160G Transport Theory

MCSC 6165G Monte Carlo Methods

MCSC 6170G Computational Chemistry

MCSC 6180G Computational Physics

MCSC 6210G Advanced Topics in Mathematical Modelling

MCSC 6220G Advanced Topics in Numerical Analysis

MCSC 6230G Advanced Topics in High-Performance Computing

MCSC 6240G Advanced Topics in Dynamical Systems

MCSC 6280G Advanced Topics in Computational Science