

# THE COULTER SCHOOL OF ENGINEERING

## GRADUATE PROGRAM

### PROCEDURES AND GUIDELINES

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## I. Introduction

This handbook is only for the use of CSOE graduate committees and the faculty. The handbook documents the educational philosophies, operating procedures, policies and degree requirements for graduate students that are consistent with the University's and School's Vision and strategic plan. Annual updates will incorporate any changes.

### ***Strategic Vision as Related to the CSOE Graduate School<sup>1</sup>***

#### **Vision**

The Wallace H. Coulter School of Engineering will be internationally recognized as a world-class college for its excellence in educating a diverse group of undergraduate and graduate students and for its cutting edge research under the motto of "Technology Serving Humanity." We will provide our students with a unique education that is rigorous, boundary-spanning, and socially responsible so that they thrive and become leaders in the global economy of 21<sup>st</sup> Century.

#### **Mission**

Our mission at the Wallace H. Coulter School of Engineering is to achieve excellence in undergraduate and graduate education, research, and service to community and the engineering profession.

- Education: Provide an outstanding boundary spanning, socially responsible engineering educational program that enables our graduates to become leaders in their profession by imparting fundamental principles, skills, and tools to innovate and excel.
- Discovery: Pursue the discovery of fundamental knowledge and its applications in service to humanity to position the SOE among the leaders in research and technology transfer.
- Outreach: Respond to the needs of the State of New York and the Nation by building a strong outreach program that serves local communities, alumni, industry and the engineering profession.
- Diversity: Be one of the leading institutions in providing equal opportunity in engineering education.

The goals and objectives in the current strategic plan that relate to graduate education and research are included in Exhibit A.

## II. Administrative Arrangements

Responsibility for administering the graduate program cascades downwards from the Graduate School (*a.k.a.* the Provost), which sets University requirements, to the School, and to the Departments. In each case, the requirements set by the lower unit must be compatible with those at the next higher level.

University requirements are available in the University catalog. The CSOE requirements are included here, but the ultimate authority remains with the departmental graduate handbooks and the current University catalog.

## III. Application Procedures

Complete instructions and forms for application to the CSOE graduate program are available at

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<sup>1</sup> version as of February 2008

<http://www.clarkson.edu/engineering/applicationcoversheet08%20eng.pdf>

A \$35 application fee is required from students outside the US and Canada. A \$25 fee is charged for US and Canadian applications who apply after December 31<sup>st</sup> for the Fall semester or June 30 for the following spring semester; this fee is waived for early applicants. The fee is also waived for Clarkson undergraduates.

The application should be completed through CollegeNet, our on-line application provider. The application package includes:

- The application form
- Personal statement
- A resume/CV
- Three reference letters
- Official transcripts from each school attended
- TOEFL (Test of English as a First Language: <http://www.toefl.org>) or ITELS (International English Language Testing System: <http://www.ielts.org>) for students from countries where English is not the native language, (minimum 550; CBT score of 213; IBT score of 80; ITELS- 6.5).
- GRE scores (no minimum score specified) Note: the CSOE departments currently do not require GREs from students who are Clarkson undergraduates.
- Other information that would help the graduate committee evaluate the applicant's request for admission can also be submitted (e.g., published papers).

After the complete application package has been received, the application is sent to the Departmental Graduate Committee for evaluation. A two-week turnaround is recommended for all US students and four weeks for all others. Once the evaluated application returns to the CSOE Graduate Coordinator the student is notified of the decision by regular mail. International students usually require 6-8 weeks notice to obtain their visas. For P.R. China, the visa process requires about three months.

The School has a suggested application deadline for students requesting financial aid: January 31 for the subsequent fall semester and August 31 for the spring semester. The official University deadlines for students not requesting financial aid are May 1 for the Fall semester and October 15 for the spring semester. The deadlines are set to provide the departments with sufficient time for reviewing the student's file, and for decisions regarding acceptance and financial aid to be made in a timely manner. **No I-20s will be issued after June 15 for the Fall semester and November 15 for the spring semester.**

The TOEFL/IELTS scores are required because Clarkson University must verify all international students' English language proficiency when English is not the language spoken at home (first language).

This requirement, as part of the application process, must be completed prior to the issue of an I-20. Once the university has verified this requirement, and the applicant is accepted, the I-20 may be used to obtain a student visa. The Dean of the School for which the applicant is applying may provide exceptions to the minimum score requirements mentioned above in limited cases. Exceptions apply only to the minimum score requirement unless the applicant fits one of the following criteria:

- Successfully completed at least one academic year at a school in the United States, or, a country where English is the primary language spoken (e.g., UK, Australia)
- Successfully completed an intensive English language course and received a certificate of completion.

All accepted international students, for whom English is a second language, are required to take an English-as-a-Second-Language placement exam (LA005) upon their arrival on campus and complete any

recommended requirements. Language courses required as a result of the placement exam are not counted toward degree requirements.

### ***Policy on Accelerated Admission to Graduate School***

This policy is intended to encourage early consideration and preparation for graduate work at Clarkson by highly qualified students enrolled in an undergraduate program at Clarkson. Such students would likely participate in undergraduate research experiences and would have identified a graduate advisor prior to baccalaureate graduation. These students may also be interested in accelerating their course of study to graduate within three years in order to begin their graduate work as soon as possible. Any student who completes at least two years of residential study at the University and who has received a baccalaureate degree from Clarkson will automatically be accepted into any Clarkson graduate program for a master's degree, if the student, at a minimum, meets the conditions below at the time of entry to Graduate School. Eligible students for CSOE must have:

- graduated in good standing from Clarkson within the previous year and have taken any necessary prerequisite courses for entrance to the graduate program in question;
- exhibited the quality of character expected of an entering graduate student of Clarkson University, as indicated by a letter from their academic advisor, department chair, or the dean of the school in which their baccalaureate degree resides; and,
- maintained a minimum grade-point average of 3.50 in their major.

Applications for graduate admission from students receiving a Clarkson University baccalaureate degree who have not met all of the conditions specified above will still be considered, but admission will not be automatic.

## **IV. Academic Advising**

To assist with Clarkson/department orientation and course scheduling, each graduate student is assigned an Academic Advisor immediately upon arrival on campus who can help to direct the student to appropriate resources and class choices. A project/thesis/dissertation advisor must be defined by the beginning of the second semester. This choice must be communicated to the departmental and school offices (**Form A**).

Written requests for transfer credit for courses taken at other schools must be initiated by the advisor then submitted with official transcripts for approval by the Department Chair, and Dean of Engineering, or their designated representatives (**Form B**). Students who took graduate courses as undergraduate students can only apply those credits if they were in excess of the credits required for the undergraduate degree. For Clarkson students, **Form C** should be used at the time the class is initially taken.

In addition to the above, and to ensure that a student is making progress towards a degree, each semester's academic program is approved by the thesis advisor at pre-registration time by clearing the student in PeopleSoft for pre-registration.

The thesis advisor, the Department Chair and the Dean of the Graduate School (currently the Provost) must approve the completion of degree requirements before the student can graduate. (**Form D**)

## **V. Duties and Responsibilities of Departments**

Most of the responsibilities related to the progress and well-being of graduate students in the CSOE rest in the department. Departments will:

- Prepare and publish an annual graduate handbook that defines all rules, requirements and

expectations of graduate students (on-line expected, hardcopies optional).

- Define criteria for admissions and funding. Review candidate applications for acceptance and funding.
- Select appropriate students to designate as teaching assistants and assign duties.
- Provide information on accepted students to faculty with research funds and assure an equitable distribution of students among advisors.
- Complete paper work for student acceptance, appointments, and completion of major milestones
- Remind students (and their advisors) about impending milestone time limits and/or milestones that were not completed by the time limit.
- Convey to the students the expectations for excellence and ethics in their research and class work. See for example – expectations of a PhD dissertation (exhibit C).
- Develop course, seminar and thesis requirements; ensure appropriate courses are taught in a timely sequence and frequency.
- Develop and implement a seminar program that provides graduate students with exposure to research problems beyond their own. Flexibility in the seminar requirements to meet the needs of off-campus students is encouraged.
- Administer CSoE PhD candidacy procedure and prepare and administer any department-level required preliminary examinations.
- Provide space and facilities for graduate students (including for students in interdisciplinary degree programs that are working with faculty in the department)
- Provide primary communication pathways with graduate students regarding course selection/ registration, deadlines, etc.
- When available, distribute tuition return funds to advisors and PIs to ensure adequate incentive for advising duties and support of graduate student research
- Define who can directly advise graduate students in their programs. For departments, all tenured and tenure-track faculty within the department must be included. Other potential advisors could also be considered (e.g., research faculty, faculty with courtesy appointments, visiting faculty). The department must define the policies by which these other faculty members can advise students in their graduate program (e.g., requiring a co-advisor to ensure continuity and program expertise).
- Provide suitable mentoring of faculty advisors so that they understand the policies, procedures, expectations and culture of the graduate program.

## VI. University and Coulter School of Engineering Graduate Degree Requirements and Policies

### ***Master of Science***<sup>2</sup>

The Master of Science degree is a thesis-based degree; each student is required to complete and defend a research-based thesis.

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<sup>2</sup> See also your departmental graduate student handbook for degree specific requirements

The MS degree requirements defined by the University and modified for the CSOE include:

- 30 Credit hours  
(up to 10 credit hours transferred (B or better); this could include distance learning courses taken from other Universities; complete **Form B** to arrange for credit transfer)
  - at least 18 credits of graduate coursework <sup>3</sup>
  - at least 2 credits of seminar
  - at least 6 credits of thesis
- $\geq 3.0$  cumulative GPA in coursework contributing to degree requirements
- At least two semesters in residence (see also Section VIII)
- Preparation and oral defense of Master's thesis
- All accepted international students, for whom English is a second language, are required to take an English-as-a-Second-Language placement exam (LA005) upon their arrival on campus. Recommended ESL courses must be completed.
- All work must be completed within 5 years

Exceptional students may be invited to proceed directly to the PhD without completing an MS thesis. Such students will be awarded the MS upon completing 40 credit hours and successfully completing the doctoral candidacy procedure with superior performance. Consult department policies for any additional requirements in your degree program.

## MS Thesis and Defense

Details describing the format and organization of an MS thesis are available at:

<http://www.clarkson.edu/engineering/pdffiles/MS%20thesis%20procedures.pdf>

a template in MS Word format is also available:

[http://www.clarkson.edu/engineering/graduate/GSA\\_thesistemplate\\_091008.doc](http://www.clarkson.edu/engineering/graduate/GSA_thesistemplate_091008.doc)

The MS thesis defense serves two purposes: examination on specific aspects of the thesis in order to establish the student's depth of understanding of the subject, and an examination on the broader field of study to determine the general level of mastery. The MS thesis committee consists of at least three Clarkson faculty members approved by the Department and CSOE Dean (**Form E**). Prior to the defense, the committee will select a Chair whose duties are to ensure the smooth conduct of the examination procedure. At the conclusion of the defense and revision of the thesis, the Chair will facilitate completion of the Graduate Student Completion Notice (**Form D**), and will include any special requirements pertaining to the student and/or thesis. There is no limit to the number of times a thesis may be defended, provided the longevity requirement has not been exceeded.

The thesis must be submitted to the committee at least 10 working days before the scheduled defense. To be eligible to receive a degree during commencement exercises in May, final copies of signed theses must be submitted to the CSOE office no later than 10 working days before graduation. This date is published each semester by the Provost's office (See also Section VII).

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<sup>3</sup> Graduate course work defined as  $\geq 500$  level. Those students who are not fully prepared to pursue graduate work in engineering may be required to take additional course work for which graduate credit will not be given.

For theses completed at the beginning of a new semester, the final copies of the thesis must be received in the Graduate School by the last day to complete the new semester check-in process or the student must register and pay tuition for one credit hour of thesis.

Once all corrections have been completed and the committee, departmental and school signatures obtained, two copies of the signed final thesis are to be submitted to the Graduate School for the Graduate Dean's signature. The original will not be signed by the Dean and will not be accepted as a copy. The Department should also receive one copy of the final thesis to be kept in the Departmental library. The departmental thesis copy must be bound in an appropriate manner. The thesis must also be submitted on CD ROM to the CSoE Graduate Coordinator. The CDs should contain two pdf files: (1) the complete thesis (title page through appendices), and (2) the title page and abstract only.

The following completed items are obtained from the Departmental Graduate Coordinator and are to be submitted with the final thesis copies:

- A Graduate Student Completion Notice (**Form D**)
- Final degree program form (**Form F**)
- Withdrawal form (including International Withdrawal Form if an International student)
- Termination form

### ***Master of Engineering***<sup>4</sup>

The Master of Engineering program provides a flexible mixture of engineering practice, design, and specialized coursework that is structured to be completed within one calendar year. Students complete an engineering project and write a final report in lieu of a thesis and oral defense.

ME degree requirements include:

- 30 Credit hours  
(up to 10 credit hours transferred (B or better); this could include off-campus distance learning courses; complete **Form B** to arrange for credit transfer)
  - at least 21 credits of graduate coursework<sup>5</sup>
    - at least 12 credits of these within engineering
  - 2 credits of seminar
  - 1-7 credits of project
- ≥ 3.0 cumulative GPA in coursework contributing to degree requirements
- Preparation and approval of written project report
- At least two semesters in residence (See also Section VIII)
- All accepted international students, for whom English is a second language, are required to take an English-as-a-Second-Language placement exam (LA005) upon their arrival on campus and complete any recommended requirements.
- Degree completed within four years

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<sup>4</sup> see also your departmental graduate student handbook for degree specific requirements

<sup>5</sup> Graduate course work defined as ≥500 level. Those students who are not fully prepared to pursue graduate work in engineering may be required to take additional course work for which graduate credit will not be given.

Completed projects must be approved by the student's advisor and Department Chair (**Form D**). To receive a diploma at the May commencement, final degree completion paperwork must be submitted to the CSOE office no later than 10 working days before commencement. (See also Section VII)

For projects completed at the beginning of a new semester, the final approval of the project and completion forms must be received in the Graduate School by the last day to complete the new semester check-in process or the student must register and pay tuition for one credit hour of thesis.

## **PhD Degree**

For those interested in an academic or industrial research career, Clarkson's PhD programs in engineering provide an opportunity to pursue leading-edge research and a high degree of specialization. In the CSOE, the minimum requirements for a PhD degree are:<sup>6</sup>

- 90 credit hours minimum (beyond B.S.)
  - Minimum of 24 credit hours of graduate course work
    - Minimum of 15 credit hours in the major field
    - Minimum of 9 credit hours in the minor field
    - Minimum of 6 credit hours from a department other than the one in which the student is housed (these credits are also counted towards either the major or the minor field of study)
    - Minimum of 9 of the course work credit hours taken in residence (may include distance learning classes taken through Clarkson (see also Section VIII))
  - Minimum of 6 credit hours of seminar.
  - Maximum of 30 credit hours transferred from a Masters degree towards PhD requirements (B grade or better; complete **Form B** to arrange for credit transfer if courses not from Clarkson)
- $\geq 3.0$  cumulative GPA in coursework contributing to degree requirements
- A minimum of three academic years of full time graduate study or the equivalent in part-time study. Two years of study must be in residence at Clarkson University. Students in the external PhD program are exempt from this residency requirement.
- Satisfactory completion of the PhD candidacy procedure within two years after matriculation into the PhD program if a full-time student or before completing 66 credits for part time students (see details regarding the candidacy procedure below)
- A written dissertation must be submitted by each candidate and defended orally as part of the final examination (see details on the dissertation and defense below)
- All work must be completed within 7 years after the student is identified as a PhD candidate
- All accepted international students, for whom English is a second language, are required to take an English-as-a-Second-Language placement exam (LA005) upon their arrival on campus and complete any recommended requirements.

Students and their advisors must define the minor and major field of study on the PhD Degree Program Form (**form H**). The major field of study does not have to comprise the entire body of knowledge within the PhD degree (CSOE offers PhD degrees in Chemical, Civil & Environmental, Mechanical, and

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<sup>6</sup>See departmental handbook for additional constraints and details

Electrical & Computer Engineering). Examples of suitable “major” fields of study can include fluid mechanics, geotechnical engineering, power systems engineering, etc. The minor field of study can be comprised of classes taken from within and outside of the department. Examples of minors can include: chemistry, mathematics, numerical methods, solid mechanics (if for example major field was in fluid mechanics,) etc. The Departments are encouraged to further define ideas for and constraints on defining major and minor fields of study within their PhD program. When signing the PhD Degree Program Form, the advisor and the department chair are responsible for making sure that the minor and major fields are indeed completed as required.

Table 1 summarizes the milestones required for the PhD degree, their time limits and forms required to confirm progress through these milestones. The forms are all available on-line. They change regularly so it is best to access the on-line version when the form is needed.

<http://www.clarkson.edu/engineering/graduate/FormsforGraduateStudents.html>

Table 1: CSOE required milestones for the PhD — see departmental handbooks for additional details

Milestone	Approvals required*	Time Limits (after matriculation as a PhD student)	Forms required
Research advisor defined	Faculty Advisor Dept. Chair	By start of second semester	Form A – Graduate Advisor
Prior graduate credits transferred (if any)	Chair, Dept. Grad. Committee Dept. Chair Dean, CSOE Dean, Graduate School	Before proposal defense – but better within first year	Form B - Graduate transfer credit form Form C - Credit for graduate courses taken as an undergraduate student
Preliminary (Qualifying) examination (required for some departments)		Not required by CSOE, see departmental requirements	Only internal departmental form
PhD advisory committee defined	Chair, Dept. Grad. Committee Dept. Chair Dean, CSOE Dean, Graduate School**	At least one month before proposal defense	Form E – Graduate Committee Appointment
Successful completion of Candidacy Examination (defense of PhD research proposal)	Committee members Chair, Dept. Grad. Committee Dept. Chair Dean, CSOE	Within 2 years of matriculation as a PhD student (or 66 credit hours completed for part time students)	Form G – PhD Candidacy Procedure
Dissertation Defense / Approval of final dissertation	Committee Members Chair, Dept. Grad. Committee Dept. Chair Dean, CSOE Dean, Graduate School	At least 1 year after research proposal completed, but within 7 years of candidacy examination.	Form D – Completion Notice Form H – Final degree form - PhD

\* or their designee

\*\* only needed if include a committee member external to Clarkson is included

## PhD Advisory Committee

The research advisor recommends the membership of the PhD Advisory Committee to the Department Chair and the Dean of Engineering for their approval (**Form E**). The committee should be appointed within twelve months after entry into the PhD program. This committee must consist of five members qualified to serve on such a committee. The members should include at least four Clarkson faculty members with rank of Assistant Professor or higher and possessing an earned doctoral degree, at least one of whom must be from outside the candidate's department. With the approval of the Graduate School (Provost), an external examiner with appropriate credentials from another University or industry may also be appointed to serve as one of the five committee members. The purpose of the committee is to provide guidance to the student in the project-related course work and research.

## Candidacy Procedure

The intent of the candidacy procedure is to ensure that the student has a solid foundation of knowledge and understanding in the discipline, is capable of pursuing significant independent and original research, and that the scope of the proposed research is appropriate for a PhD degree.

At a minimum, the examination for admission to candidacy must include a written proposal on the student's PhD research and its oral defense before the student's PhD committee. **Exhibit B** defines the expectations of a PhD proposal. ALL members of the PhD committee must reach a consensus that the student is ready to be admitted to candidacy. The "PhD Candidacy Procedure Completion Form" must be completed with all signatures and submitted to the Department. Departments may choose to also administer a preliminary exam (sometimes called a qualifying exam) as an earlier component of the overall candidacy procedure. Consult the individual graduate handbook for your department for additional details.

- After completion of the candidacy procedure, the students will be identified as a "PhD Candidate."
- Students who fail the first time may make a second attempt within a limited time frame according to Department guidelines. The PhD committee can be reconstituted for the second exam.
- A student who does not successfully complete the candidacy procedure within the time allowed may be dropped from the PhD graduate program.

## PhD Dissertation and Defense Policies and Submission Guidelines

### Preparation

The PhD dissertation is expected to be original and publishable scholarly work. Guidelines that define the expectations for a PhD dissertation are included in **Exhibit C**.

All PhD dissertations are submitted to ProQuest/UMI® Dissertation Publishing and need to be formatted and prepared in a manner that meets their requirements. In addition, Clarkson has specific requirements for the title and signature pages of the dissertation (**Exhibits D and E**).

Details summarizing the preparation of a PhD dissertation can be found at:

<http://www.clarkson.edu/engineering/pdffiles/PhD%20dissertation%20procedures.pdf>

and

[http://www.il.proquest.com/dissertationagree/dissertation\\_publishing\\_agreement.pdf](http://www.il.proquest.com/dissertationagree/dissertation_publishing_agreement.pdf)

A template in MS word for thesis documents can readily be adapted for PhD dissertations:

These procedures should be reviewed carefully. Please note especially:

- General Format: 8.5 x 11 inch paper with 1.5” margins on the left and 1” margins on top, right and bottom. ALL figures, tables, footers, headers etc. must be contained within these margins. Page numbers must be 0.75” from the edge of the page, but do not need to be included within the margins.
- Double space all except the following, which should be single spaced: quotations as paragraphs, captions, items in tables, lists, graphs, footnotes/endnotes, bibliography.
- Black and white preferred (at least for ProQuest); color images will be reproduced as gray scale in microfiche or prints from microfiche.
- Graphics – at least 600 dpi resolution expected.
- Copyright (see also section VII below)–
  - The author of the dissertation must obtain permission to include any material previously published (including your own work) and adequately cite that permission per the copyright owner’s requirements.
  - The dissertation author automatically owns the copyright of materials in the dissertation (or has obtained permission to use the material by current copyright holders). However, registering the author’s claim as the copyright owner with the U.S. Copyright Office would provide the author with greater legal clout should you have any need to contest the copyright ownership. ProQuest/UMI® can complete the required paperwork to register the copyright.
- Open Access publishing - ProQuest/UMI® allows the author to make their dissertation freely available to others through the internet, thereby maximizing its potential dissemination and use. This option should be used only very carefully, however, if the results are also planned for publication as a book or through proceedings or journal papers. In that case, the copyright restrictions imposed by the journal generally do not allow internet publication. The author should check with the journals that he/she expects to publish the manuscripts in prior to choosing this option.
- Embargo – If the author is in the process of patenting or publishing material from the dissertation as journal manuscripts, he/she can select to embargo the dissertation for six months to two years, thereby putting the microfiche or open access dissemination of the dissertation on hold for the embargo period. This allows the author time to submit related patent applications or to finalize manuscript submission and acceptance without infringing on journal copyright requirements.

### **Defense of the Dissertation**

Each graduate student is responsible for working with his/her departmental Graduate Coordinator to make arrangements for a room and advertising the thesis defense at least one week before the scheduled date. Committee members should be provided a period of ten working days to examine the dissertation. Questioning during the defense will ascertain that the student has completed sufficient research work to be worthy of a PhD, that the student understands not only the subject matter to a sufficient depth, but also the broader implications and importance of the research, and that the research is original and was completed independently.

### **Submitting the PhD Dissertation**

Once all corrections have been completed and the committee, and departmental signatures obtained, two copies of the dissertation (not originals) are to be submitted in loose form without holes drilled. The student may place folders around each copy for protection. The Department should also receive one copy

of the final dissertation to be kept in the departmental library. The dissertation must also be submitted on two CD ROMs to the CSoE Graduate Coordinator. The CD should contain two pdf files: (1) the complete dissertation (title page through appendices), and (2) the title page and abstract only. The title page and abstract will be posted on Clarkson's web site.

The dissertation must be accompanied by a \$110 fee (subject to change) to cover the costs of ProQuest/UMI microfiche and binding.

In addition to the dissertation, the following completed items obtained from the Department Secretary must be submitted to the Graduate School:

- A degree completion notice (**Form D**)
- ProQuest/UMI<sup>®</sup> Dissertation Submission Form and Optional order form for bound copies ([http://www.il.proquest.com/products\\_umi/dissertations/submitted\\_authors.shtml](http://www.il.proquest.com/products_umi/dissertations/submitted_authors.shtml) )
- Survey of Earned Doctorates
- Final Degree Program form (**Form H**)
- Withdrawal form

Final copies of the dissertation must be received in the Graduate School no later than ten class days prior to a Commencement to qualify to receive the degree at that Commencement. (see also Section X)

For dissertations completed at the beginning of a new semester, the final approval of the dissertation and related completion forms must be received in the Graduate School by the deadline for the new semester check-in or the student must register and pay tuition for one credit hour of thesis.

## ***Special Opportunities for CSoE Graduate Students***

### **ME / MBA Dual Degree Option**

Students have the opportunity to earn two master's degrees in two years, developing both engineering and management skills in a stimulating, project-based environment.

Students first complete a program leading to a 30-credit hour, non-thesis Master of Engineering degree (see details in Section VI). This program focuses on practical engineering applications in an environment that can span the boundaries between traditional disciplines. The Business Concepts Program is then offered to students during the summer between earning the Master of Engineering and beginning the nine month MBA program to cover pre-requisites for the MBA. Up to ten 1.5 credit "Business Concepts" courses can be completed at no tuition cost to participants in this dual degree program. MBA courses completed during the second year emphasize teamwork, leadership and managerial skills.

The MBA component of this option requires

- 35 credit hours total
  - Ten modules (20 credits)
  - Four electives taken in the spring semester (12 credits)
  - Experiential learning or study abroad option available (3 credits)

For more information on the one-year MBA program, visit <http://www.clarkson.edu/business/mba/curriculum/index.html>

Application to this program should be through the CSoE application process. There is a special checkbox to indicate the student's interest in the ME/MBA program.

## Off-Campus PhD Program

The off-campus PhD program has been designed to assist qualified non-resident candidates to matriculate at Clarkson University as doctoral degree candidates. It is intended that the PhD research directly align with research needs of the student's employer. A research co-advisor from the student's employer will be defined to work along with a co-advisor from Clarkson. This off-campus co-advisor is expected to be a member of the dissertation committee. The relationship between the student's employing organization and Clarkson University must conform to the Clarkson Conflict of Interest Policy.

The normal PhD requirements for the student's department must be met. As with other PhD students, up to 30 credits with a grade of B or better can be transferred and used to meet the 90 credit hour degree requirements. There is a maximum of 9 credits of coursework offered through distance learning. It is conducted through direct contact and quality distance learning. The department will specify the period of time the student spends on campus (at the department) and the number of visits (each semester).

It is generally expected that the part-time off-campus students will pay full tuition. Any request for a tuition waiver for off-campus students must be approved by the Dean.

## Off-Campus Educational and Research Experiences

A Clarkson education emphasizes real-world experiences. Clarkson graduate students can participate in a variety of off-campus learning experiences:

***Cooperative Education:*** In the Cooperative Education Program (co-op), students leave the classroom for a semester and go to work for a company – putting classroom studies to use in a productive work environment. Students build and refine their technical and business skills as young professionals. They also get to learn more about a company, helping the students to determine which career paths are right for them.

***Internships:*** The internship program provides students the opportunity to spend a summer or semester gaining experience in their field.

***Semester Abroad:*** Students working on research or educational projects that include international partners can spend time abroad at our partner institutions. This experience enables research work to be completed beyond the bounds of our campus and provides a cultural experience to broaden the students' perspectives on research in an international and global environment. The semester abroad can include research, coursework or both. These arrangements are highly dependent on the particular project.

***Research Semester off Campus:*** Some graduate students need to use off-campus facilities to complete their research. These facilities may be at another University or they may be in an industrial setting. This experience enables research work to be completed beyond the bounds of our campus and provides a professional experience to broaden the students' perspectives on research in different academic settings or industry. These arrangements are highly dependent on the particular project.

In all cases, the off-campus experience needs prior approval from several offices in order to ensure that the students' status and fees are properly adjusted. Failure to comply with these procedures can result in unnecessary tuition or fees or a change in the student status to part time, which could adversely affect the student's schedule for repayment of student loans, visa status, or medical insurance benefits.

***Eligibility:*** Off-campus experiences are limited to graduate students who

- are matriculated as full time student;

- have been in residence for at least one semester (domestic students), or one academic year (international students);
- have maintained at least a 3.0 GPA for all graduate coursework;
- but, have not yet completed the minimum credit hours for their degree (30 for MS, ME or 90 for PhD).

***Requesting an Off Campus Experience:***

Co-op and Internship program – The student must complete the co-op and internship application and academic plan forms available through the Career Center.

[http://www.clarkson.edu/career/prof\\_exp/forms.html](http://www.clarkson.edu/career/prof_exp/forms.html)

Domestic and international students who have completed the Career Center paperwork for a co-op experience will be placed in SII, which is a non-credit place holder code to identify the off-campus experience. In this case, no tuition or activity fee expenses will be charged and the student is considered a full time student.

International graduate students who leave campus for an internship experience must register and pay for credit under SI500 – Professional Internship in order to maintain their student status. The student must enroll in an appropriate number of credits in SI500 to maintain full time student status. Enrollment in this course requires the permission of the advisor, the Career Center and the ISSO.

International students: For co-op or internship, international students **must** also apply for Curriculum Practical Training (CPT) in compliance with the rules established by the International Student and Scholars Office (ISSO):

[http://www.clarkson.edu/isso/Immigration\\_visa/f\\_cpt\\_faqs.html](http://www.clarkson.edu/isso/Immigration_visa/f_cpt_faqs.html)

Semester Abroad or Research Semester Off Campus: Because these opportunities vary substantially between specific projects, there are no common forms for approval. A memo describing the off-campus opportunity, including its relationship to the student’s research and coursework must be written and signed by the student, and approved by his/her advisor, the department chair and, as appropriate, the Career Center (for international experiences) and/or the ISSO (for international students). Students can register for thesis/dissertation credits or SI500 as appropriate given the connection between the student’s research and their off-campus experience. Copies of this memo should be distributed to all signatories and the department and school offices. With the appropriate completion of this paperwork, the student maintains their full-time enrollment status and the on-campus fees will be waived. The tuition credits must be covered by the student or research grant or waived by the school as per standard rules.

## **VII. Duties and Responsibilities of Each Student**

All graduate students at Clarkson are required to abide by the rules and regulations of the University and Department as set forth in the Catalog, Clarkson Regulations, and as contained in this Handbook. Students who have received a financial award administered through the University must abide by the University policy permitting the equivalent of **two weeks of vacation**, plus regular University holidays, during the calendar year. By University policy, the service requirements of Teaching Assistants amount to *the equivalent* of 12 hours per week for 50 weeks for a 1-year appointment (600 hours). This means a Teaching Assistant could be asked to work 20 hours per week during each of two 15-week semesters, including time for preparation and grading. Teaching Assistants with such a workload would have no further commitment of teaching assistant duties to the Department. This includes the time between semesters or during the summer. Similarly, by University policy, full time Research Assistants are required to work 40 hours per week for their stipend and tuition, less time spent in class, for the duration of their appointments.

The CSOE graduate coordinator, Department Chair, and Graduate Committee must be advised in writing of a leave of absence. In addition, the University's International Advisor must also be notified of travel or leave of absence by international students.

## **Seminar Attendance**

All graduate students are required to attend seminars to broaden their knowledge of science, mathematics and engineering fields and applications. Students are expected to attend seminars every semester and will receive one credit per semester for meeting departmental seminar attendance guidelines. Departments can modify their requirements to facilitate seminar attendance by students who are off campus (e.g., part time students, students on co-op or internships). These arrangements can include requiring students to attend a number (~12) of professional talks per semester and document these activities. These can include on-line lectures, keynote presentations at a major conference, seminars at other Universities or businesses, etc.

The concurrent enrollment of two credits of seminar is discouraged. Students can, however, enroll for two credits of seminar in extenuating circumstance with the permission of the course instructor. The department guidelines should state the expectations for receiving the second credit. This could include the presentation of a full-length seminar or attending a sufficient number of additional seminars from other departments etc.

## **Presentation and Publication Expectations**

Scholarly work and its dissemination through peer-reviewed, archival publication(s) are expected of most MS and all PhD students.

With the departmental and advisor approval, students are encouraged to organize their thesis or dissertation around a manuscript (MS thesis) or collection of related manuscripts (PhD dissertation) to facilitate further dissemination of the scholarly work. Students are expected to be the primary author on any manuscript included in the thesis or dissertation and are required to specify their contribution to multi-authored works.

## **Research Ethics and Intellectual Property Issues**

Graduate students are expected to follow University defined rules related to academic integrity and intellectual property. This includes following the

- **Code of Student Conduct**, which prohibits all forms of academic dishonesty, including cheating, fabrication, plagiarism and aiding and abetting of a dishonest act. (<http://www.clarkson.edu/studentaffairs/regulations/v.html>)
- **Intellectual Property Policy**, which applies to graduate students and the work produced by graduate students. Details of the IP policy are included on the University's web site ([http://www.clarkson.edu/dor/documents/IP\\_Policy\\_092505.pdf](http://www.clarkson.edu/dor/documents/IP_Policy_092505.pdf)). The following is a general summary and guidelines for students:
  - With the exception of graduate theses and dissertations, ownership of intellectual property produced by members of the Clarkson community (including students, whether or not they are funded by the University) generally belongs to the University.
  - Graduate student advisors are expected to share aspects of research contracts with their students that pertain to confidentiality and IP issues. Graduate students are expected to abide by these contract rules.
- **Copyright Laws**, which pertain to how to avoid infringing on someone else's copyright and how to

protect the student's own copyright. The book by Kenneth Crew<sup>7</sup> thoroughly addresses copyright law and should be consulted for detailed explanations. Some general guidelines include:

- The thesis or dissertation will likely include quotations, pictures, charts, standard tests, or other materials created by other authors. Permission to use such materials from the copyright owner is often required before borrowing the "expression" of other works. Giving full credit and citations does not exempt the dissertation author from the obligations of copyright law. Copyright law provides a right of "fair use" that allows limited copying-such as short quotations-without consent. However, **the student is required to obtain proper permission from the copyright owner for the following materials** that might be included in a thesis or dissertation<sup>8</sup>:
  - Long quotations from pre-existing materials that extend for more than one and one-half single-spaced pages.
  - Reproduced publications. Examples include copies of standard survey instruments or questionnaires, and the student's OWN journal articles already published.
  - Unpublished materials. Extensive reference to unpublished works raises a variety of issues about copyright and about privacy and access to collections.
  - Graphic or pictorial works. For example, copies of graphs or schematic diagrams included in your dissertation from previously published works.
  - Computer Software. Dissertations embodied in new media, such as on a website or on CD-ROM, may incorporate reader programs or other application software to make the new work accessible or useful. Reproducing such programs to accompany your dissertation will almost invariably require permission. Consult any license agreement, including those for "Shareware," that may apply to the programs, and prepare to seek permission from the copyright owner.
  - Sources located on the Internet. Easy availability does not change copyright status. Materials on the Web are protected by copyright just as if they appeared in a book or on tape.
- Copyright permissions are generally given readily for student's use of their own works. However fees are sometimes charged for permission to use materials originally generated by a different author. See **Exhibit D** for a sample letter requesting permission to use copyrighted material.
- Receipt of permission to use copyrighted materials needs to be noted in the thesis or dissertation. For example, a footnote stating: "Reproduced (or "Reproduced in part") with permission from [FULL REFERENCE CITATION]. Copyright [YEAR] [COPYRIGHT OWNER]."
- Materials on the internet are automatically copyrighted by the person posting the materials. Care should be taken in posting research results prior to their publication elsewhere since some journals consider materials posted on the web to be "prior publication" and will not consider the manuscript for journal publication. Consult the author guide for the journals pertinent for publication of the student's research prior to

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<sup>7</sup> Crew, K.D., Copyright Law and Graduate Research: New Media, New Rights and Your Dissertation, ProQuest Information and Learning, Ann Arbor MI, 2002. Available for free download [http://www.proquest.com/products\\_umi/dissertations/copyright/](http://www.proquest.com/products_umi/dissertations/copyright/)

<sup>8</sup> From PQ/UMI@ GradWorks Guide F2006.

[http://www.il.proquest.com/dissertationagree/dissertation\\_publishing\\_agreement.pdf](http://www.il.proquest.com/dissertationagree/dissertation_publishing_agreement.pdf)

posting information on the web. This includes conference publications or presentations that conference organizers might post on the web as well.

- Copyright laws pertain to MS theses as well as PhD dissertations. The rules are enforced for PhD dissertations when they are submitted to ProQuest/UMI®. Although this same enforcement does not happen for MS Theses, it is still expected that they obtain required permissions for the use of copyrighted materials in their theses. In addition to complying with the laws, enforcing this requirement also helps to teach our students about the appropriate use of intellectual property.
- The dissertation or thesis author automatically and immediately owns the copyright of materials in the dissertation (or has obtained permission to use the material by current copyright holders). However, students can include a copyright notice in their thesis/dissertation. The notice, which can be included on the page just after the title page should state: “Copyright [YEAR], [STUDENT NAME]”, OR “© [YEAR], [STUDENT NAME].” Registering the copyright with the Library of Congress is technically optional. However, you have limited rights to protect your copyright (e.g., to file an infringement lawsuit) unless it was registered before the infringement occurred.

## **VIII. Residency Requirements<sup>9</sup>**

“Residency” is required for ME, MS and PhD students, although this requirement is waived for off-campus PhD students. However, given advances in current technology, the definition of residency can be broadly interpreted to go beyond the purely physical - i.e., living on and attending classes that meet on campus.

Courses offered by Clarkson via distance that meet certain criteria can be considered to have been taken "in residence". Some of the criteria are:

1. Courses taken by electronic distance learning methods that also are offered for degree-credit enrollment to students who are living and attending classes on-campus may be considered to offer equivalent experiences;
2. Courses taken by video-conference that is synchronous with on-campus courses may be considered to offer equivalent experiences;
3. Courses taken by electronic distance learning methods that incorporate one or more visits to campus for an instructional session may be considered to offer an experience that is equivalent to that of an on-campus offering of the course;
4. A remote site, after appropriate examination, review discussion, possible modification, and intentional oversight by qualified instructional personnel, may be designated for electronic offering of courses to yield outcomes that are equivalent to those of an on-campus offering of the courses.

Consideration of residency for research credit will be determined by the CSOE Dean on a case by case basis.

## **IX. Financial Aid and Tuition Waiver Policies**

1. The University establishes and publishes the tuition rate and the annual minimum stipend rate for research (RA) and teaching (TA) assistants in November for the following fiscal year.
2. The Provost has delegated to the Deans of the schools the authority to coordinate with the departments and the Office of Budgets and Planning to ensure appropriate allocation of funds to the

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<sup>9</sup> As defined by Provost Young, 2007

departments for TA stipends. Departments shall appoint students to TA positions and assign duties as appropriate to support the departments' programs. Deans shall allocate funds to cover tuition for TAs for appointments that are at least one semester in duration. The tuition allocation permitted for each appointment is limited to a maximum of 15 credit hours per academic semester and 30 credit hours per academic year.

3. The Provost has delegated to the Deans of the schools the authority to grant tuition scholarships to students on RA appointments in instances that meet the conditions specified below. The tuition scholarship may cover a maximum of 15 credit hours per academic semester and may not exceed 30 credit hours per academic year.
  - a. The research grant(s) from which the RA stipend derives must recover full indirect costs at the rate appropriate to the grant (on-campus or off-campus). In addition, when permitted by the funding source, the research grant must:
    - i. recover academic year salary equal to the amount of summer salary requested, OR
    - ii. recover a minimum of 10 credits of tuition per student per year;
  - b. Generally, the minimum duration of an RA appointment is six months per semester of tuition scholarship provided. Two exceptions to the six month requirement are permitted:
    - i. A tuition scholarship may be granted to a student during her/his first semester of full matriculation as long as the student's initial RA appointment has a duration of four months or longer;
    - ii. A tuition scholarship may be granted to a student during her/his final semester of full matriculation as long as the student has met the credit hour requirements of the degree sought and the RA appointment has a duration of one month or longer.
  - c. Funds from up to three accounts may be aggregated to provide one stipend. If the tuition scholarship is used as cost-sharing on the supporting grant(s), and aggregated funds from multiple grants (up to three) provide the stipend, then the tuition charges will be prorated across each account used to provide funds for the stipend.
  - d. PIs are advised that while the University may provide a tuition scholarship to cover up to 30 credits per RA per year, proposals now show a maximum tuition cost sharing of 10 credits per RA per year to better ensure that the commitment can be honored.
4. The appointment category of Graduate Assistant (GA) applies to graduate students who receive less than a full RA or TA appointment, as defined above. A GA appointment may cover tuition or stipend or both, and may be paid from internal or external funds. GA stipend appointments are encouraged rather than tuition appointments for full time students to reduce complications in the University's policies for returning a fraction of the graduate tuition revenue. A student on a GA appointment that covers stipend is not entitled to a full tuition scholarship. However, a student on a GA appointment may receive consideration for a partial tuition scholarship on the same basis as other matriculated graduate students. A GA stipend must be at least minimum wage and duties may not exceed 40 hours per week including time to attend classes. GA appointments can be made for any period of time.
5. Self-paying students may receive a tuition scholarship for up to 40% of the tuition for which the student has registered. The Graduate School, upon recommendation by the Department, provides this scholarship. For a 40% tuition waiver, full-time ME students may receive up to 6 credits of support per semester for 2 semesters; full-time MS students may receive up to 4 credits of support per semester for 3 semesters, and full-time PhD students receive a waiver until they've completed their 90 credit hours. These 40% merit awards require up to 6 hours of Departmental work per week. A 30% tuition waiver is more typical. In this case, the numbers above all scale down to 75% of the indicated

value. Permission from the Dean is required to provide tuition waivers to off-campus PhD student or if a waiver greater than 40% is requested. Most departments have policies to offer waivers that are less than this maximum amount based on the present University policy to return some of the tuition paid by these students. Students with partial tuition waivers will be called a “Departmental Assistant.” To avoid confusion of roles and responsibilities, they should not be referred to as a Teaching Assistant.

6. Clarkson University is responsible for providing certain assurances to the federal government concerning graduate students. Please contact the Graduate School before hiring graduate students as part-time employees to be paid via time cards. Graduate students who hold full-time appointments are **not** eligible to take additional employment during the period of the appointment. In addition, graduate students generally should not be paid via time cards from any externally-funded research account. Since other possibilities exist that may not fit these general guidelines, please contact the Graduate School before giving assurances to any graduate student regarding part-time, hourly employment.

## **X. Graduate Policy on Commencement**

In order for a graduate student to receive a diploma at the May Commencement ceremony:

- All coursework and seminar credits must be completed as specified by the degree requirements.
- Master’s theses or Doctoral dissertations must be approved by the student’s research committee, department, school, and Dean of the Graduate school. All associated final and signed copies and paperwork must be submitted to the appropriate school office by the published deadline. This deadline is generally 10 working days before commencement in the spring or the last day of finals in the fall.
- Projects for non-thesis Master’s students must be approved by the advisor and department. All associated paperwork must be submitted to the appropriate school office by the published deadline. This deadline is generally 10 working days before commencement in the spring or the last day of finals in the fall.

CSOE graduate students who do not meet these requirements and deadlines *may* be allowed to participate in graduation ceremonies in the following cases:

### **A student may “walk through” the May graduation ceremony if:**

- The student has defended his or her dissertation, thesis or presented their project, yet has failed to meet the published deadline for the final signed copies and completed paperwork.

OR

- The student is in a Master’s degree program, has submitted an approved and signed thesis or project report, and requires no more than three additional credits of coursework.

Student requests to walk through the graduation ceremony require explicit approval by the Dean of Engineering, with the approved request submitted to the Dean of the Graduate school at least 10 working days before the faculty votes to confer degrees at the May graduation.

In the case of an incomplete dissertation, thesis or project, the petition must be initiated by the thesis or project advisor and be approved by the department or program chair, and the Dean of the respective School or comparable unit administrator. This petition should (a) certify that a successful presentation or defense of thesis had occurred prior to the published deadlines, and (b) carry the signatures of the thesis or project advisor, and all other members of the thesis examining committee indicating that they are confident that the remaining corrections to the thesis or dissertation can be completed by the student.

Students who are allowed to walk through the graduation ceremony under these conditions will receive

their diploma and be counted as graduates at the next graduation ceremony following the completion of their degree requirement.

# Exhibit A: CSoE Goals and Objectives Related to Graduate Education and Research<sup>10</sup>

## Graduate Education

**Tactic 1. Provide graduate curricula that stay abreast of the rapidly changing body of knowledge and research tools in science, math and engineering, and that reflect the needs of both students and their future employers.**

### *Quantitative Objectives*

- Build/promote graduate programs that align with the University-defined interdisciplinary research focus areas and cross-cutting priority areas, which include: advanced materials, environment/energy, bioscience/bioengineering and computational science and engineering (CSE).
  - MS and PhD graduate degrees, including related seminars and common courses, in each of the materials, environment/energy, bioengineering, and CSE areas, will be established.
- Achieve a critical mass of students completing research in each of these interdisciplinary research focus areas and cross-cutting priority areas
  - There will be at least 25 CSoE graduate students in each of the interdisciplinary areas of materials, environment/energy, bioengineering and Simulation based engineering, science and informatics.
  - 50% of MS and PhD students will participate in some experiential opportunity that extends beyond their primary research activities (industrial partnership, teaching, experience abroad, etc.)
  - 15% of PhD graduates will be employed in an academic setting within 3 years of graduation and 90% of all ME, MS, and PhD students will find employment in their field within 1 year of graduation.

**Tactic 2: Recruit a high quality and diverse graduate student body**

### *Quantitative Objectives*

- Increase the quality and quantity of graduate students.
  - Increase the number of graduate students in engineering by 8% per year through the year 2011 to a stable total of 250 graduate students by 2015.
  - 10% of graduate students in the CSoE will be US citizens from schools other than Clarkson.
  - 80% of graduate students from China and India will be from top ranked engineering universities as defined within these countries.
  - 10% of graduate students will be from top ranked engineering universities in countries other than China and India.
- Increase the diversity of recruited and admitted graduate students
  - The percentage of female graduate students in MS and PhD programs will exceed the national average
  - We will reach 50% of the national average in percent of MS and PhD graduates who are African American, Native American, and Latino.

## Research, Discovery and Scholarly Activities

### Tactic 1: Promote interdisciplinary research focus areas

#### *Quantitative Objectives*

- Enhance the infrastructure and value of research centers that are aligned with University interdisciplinary research focus areas
  - 75% of CSOE faculty members participate in and benefit from connections to a research center.

### Tactic 2: Enhance the research environment in alignment with the University's Evolution to Excellence

#### *Quantitative Objectives*

- Increase the national reputation of the graduate programs
  - 80% of the CSOE graduate programs will be represented on the US News list of ranked graduate programs and will be in the top 50% of the NRC review of PhD programs
  - Graduate programs directly related to research focus areas will be in the top 50% of the ranked graduate programs as defined by the US News & World Report.
- Increase annual research grants & contract awards by 12% per year through 2011
- Increase the percentage of faculty engaged in funded research
  - 75% of CSOE faculty members will fund graduate students and other research activities through external grants or contracts.
- Enhance scholarly dissemination of research work
  - 80% of CSOE faculty members will publish at least two peer-reviewed top quality archival journal articles per year
  - 75% of MS and 100% of PhD graduates will publish their research in archival journals within 1 year of graduation.
  - 100% of all PhD graduates will present their research work to an external audience (conference, workshop, industrial meeting) prior to the completion of their degree.
  - 100% of MS theses and PhD dissertations will be available through Clarkson's web site.
- Increase PhD production rate
  - At least 25 PhD students will graduate from the CSOE each year, with a long term goal of 30 PhD graduates per year (based on 50% graduate students being in PhD program and a duration of 4 years for completing the degree)
- Increase the number of undergraduate students completing meaningful research
  - 7% of undergraduate students will be involved in research and innovation projects
- Increase the visibility and reputation of faculty.
  - 20% of the faculty members will be recognized by their professional society as a Fellow or similar rank
  - 10% of the faculty will have received an award at a national or international level in a five year period.
  - 50% of the faculty each year will serve in a leadership role for a national or international journal or professional society
  - 50% of the faculty will be invited each year to present their scholarly work at an external workshop, national conference, or external University seminar.

## Exhibit B: Suggested Contents of a Doctoral Research Proposal

The intent of a proposal is to show that you have a problem worthy of addressing, and that you have a research plan that is worthy of a PhD degree yet has a reasonably limited scope to assure completion in a timely manner. In a proposal you must:

- 1) Identify a problem that is worthy of investigation
- 2) Provide background materials that show you understand the fundamentals related to the problem
- 3) Provide background materials that identify the current state-of-the-art in terms of understanding the problem and clearly identify current gaps or limitations in the research work already completed by others.
- 4) Establish and justify your goals and objectives\*
- 5) Present any preliminary work that you have completed to provide confidence that the problem is important and that your research approach is realistic.
- 6) Lay out a plan for your research investigation, for example:
  - a) Experimental materials and methods, equipment used, design of an experimental matrix, quality control, plan for data analysis and interpretation; or
  - b) General mathematical tools used, model development procedure, approach to test or verify model, application of the model, analysis and interpretation of results.
  - c) Proposed timeline and major deliverables or milestones
- 7) Summarize the expected outcomes of the research work and their contribution to the current state of the art.

### **\* Defining the objectives of your research is critically important.**

It should be noted that the objectives of your research define the OUTCOME, i.e. what will be learned. They are not a statement of the approach or tasks that are required to meet these objectives.

Some examples of reasonable research objectives:

- Determine the effect of Marangoni convection on mixing of molten glasses
- Predict the extent of mechanical degradation of polymers

These both define the resulting outcome (prediction, effect on...) so they are objectives.

The related tasks or research approach could be:

- Solve a set of coupled non-linear PDEs...
- Perform experiments on...

These define the required steps; they do not define the outcome so they are NOT objectives.

## **Exhibit C: Attributes and Expectations of a PhD Dissertation**

### **Overall contribution of the dissertation**

- Research makes a contribution to the field and that contribution is clearly stated.

### **Communication**

- Writing follows standards of acceptable technical writing
- Organization is appropriate and logical
- Visual/graphics added to increase interpretation and are of appropriate resolution
- Meets ethical standards – free of plagiarism and includes copyright permissions as necessary

### **Problem definition**

- Clearly defines a question or problem and/or hypothesis and justifies its importance

### **Mastery of subject and relevant literature**

- Displays an understanding of the current state of knowledge in the discipline through synthesis of literature
- Applies theory to the problem

### **Research methods**

- Uses appropriate research methods to address the problem
- Develops a research plan that clearly addresses the objectives and hypothesis
- Research plan includes a means of assessing the quality of the results (reliability, accuracy, reproducibility etc.)

### **Results/Analysis**

- Presents results with appropriate graphical and tabular formats to support interpretation
- Explores issues and connections with statistics and/or theoretically to show understanding and depth of interpretation
- Relates results and discussion to objectives, hypothesis, and other literature
- Results are significant and make a contribution to the current state-of-knowledge
- Conclusions tie the whole thing together

### **Contributions**

- Original and creative.
- Could change the way people think
- Opens new areas for research

### **Publications and potential publications.**

- Is publishable in peer-reviewed archival publications

### **Presentation and defense of research**

- Well organized and professional,
- Questions are addressed in a knowledgeable and respectable manner.

Adapted from: Lovitts, B.E., How to Grade a Dissertation, *Academe OnLine*, Nov-Dec 2005, American Association of University Professors (<http://www.aaup.org/AAUP/pubsres/academe/2005/ND/Feat/lovi.htm> )

## Exhibit D: Thesis / Dissertation Cover Page

CLARKSON UNIVERSITY

**Title**

A Thesis/A Dissertation

By

**Name**

Department of <XXX>

Submitted in partial fulfillment of the requirements

for the degree of  
Master of Science, <XXX>

Doctor of Philosophy, <XXX>

**Date**

Accepted by the Graduate School

\_\_\_\_\_,  
Date,

\_\_\_\_\_  
Dean

## Exhibit E: Thesis/ Dissertation Signature Page

The undersigned have examined the thesis/dissertation entitled "**Thesis/Dissertation Title**" presented by **Name**, a candidate for the degree of **Master of Science/Doctor of Philosophy (Degree)**, and hereby certify that it is worthy of acceptance.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Advisor

\_\_\_\_\_  
Examining Committee\*

\_\_\_\_\_  
Examining Committee

\_\_\_\_\_  
Examining Committee

\_\_\_\_\_  
Examining Committee

\_\_\_\_\_  
Examining Committee

\* Please type each Committee Member's name under their signature line.

## Exhibit F: Sample Letter requesting permission to use copyrighted materials<sup>11</sup>

[letterhead stationery or return address]

[Date]

[Name and address of addressee]

Dear \_\_\_\_\_:

[Optional beginning sentence: This letter will confirm our recent telephone conversation.] I am completing a doctoral dissertation at \_\_\_\_\_ University entitled "\_\_\_\_\_." I would like your permission to reprint in my dissertation excerpts from the following:

[Insert full citation and description of the original work.]

The excerpts to be reproduced are: [insert detailed explanation or attach copy].

The requested permission extends to any future revisions and editions of my dissertation, including non-exclusive world rights in all languages, and to the prospective publication of my dissertation by UMI. These rights will in no way restrict republication of the material in any other form by you or by others authorized by you. Your signing of this letter will also confirm that you own [or your company owns] the copyright to the above-described material.

If these arrangements meet with your approval, please sign this letter where indicated below and return it to me in the enclosed return envelope. Thank you very much.

Sincerely,

[Your name and signature]

PERMISSION GRANTED FOR THE  
USE REQUESTED ABOVE:

\_\_\_\_\_  
[Type name of addressee below signature line]

\_\_\_\_\_  
Date \_\_\_\_\_

### Instructions for permission letters:

1. Be sure to include your return address, telephone and fax numbers, and date at the top of the letter.
2. Spare no effort in confirming the exact name and address of the addressee. Call the person to confirm the copyright ownership.
3. State clearly the name of your university and your dissertation's title.
4. Describe precisely the proposed use of the copyrighted material. If necessary or appropriate, attach a copy of the quotations, diagrams, pictures, and other materials. If the proposed use is extensive, such as the general use of an archival or manuscript collection, describe it in broad and sweeping terms. Your objectives are to eliminate any ambiguities and to be sure the permission encompasses the full scope of your needs.
5. The sample signature form at the end of the sample letter is appropriate when an individual grants the permission. When a company, such as a publishing house, is granting permission, use the following signature format:

PERMISSION GRANTED FOR THE USE REQUESTED ABOVE:

[Type name of company]

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

<sup>11</sup> From: Crew, K.D., Copyright Law and Graduate Research: New Media, New Rights and Your Dissertation, ProQuest Information and Learning, Ann Arbor MI, 2002. [http://www.proquest.com/products\\_umi/dissertations/copyright/](http://www.proquest.com/products_umi/dissertations/copyright/)

## Exhibit G: Forms

A student's progress through his/her graduate degree program is tracked with a variety of forms to document the process and gain approval for work completed. The following forms are available in pdf format for students, advisors and department to access and complete. Please access the on-line version when the form needed – all are subject to change.

Link directly to forms below or through the general forms web page:

<http://www.clarkson.edu/engineering/graduate/FormsforGraduateStudents.html>

Form A	<a href="#">Appointment of a Graduate Academic Advisor</a>	Completed no later than the beginning of the student's second semester of study (M.E., M.S.) or before the student has completed 15 credits of graduate course work (Ph.D.)
Form B	<a href="#">Graduate transfer credit form</a>	No time limit, submission of the form during first semester of graduate program suggested
Form C	<a href="#">Credit for graduate courses taken as an undergraduate student</a>	For undergraduate students continuing on to graduate school: suggested submission within first semester of graduate program
Form D	<a href="#">Graduate Student Completion Notice</a>	After all degree requirements completed, including final approval of thesis/dissertation
Form E	<a href="#">Graduate Committee Appointment</a>	At least one month before thesis defense (M.S.) or candidacy exam (Ph.D.)
Form F	<a href="#">Final degree program form - M.E.</a>	Updated each semester (student and advisor), completed and submitted when all courses and degree requirements met
Form F	<a href="#">Final degree program form - M.S.</a>	Updated each semester (student and advisor), completed and submitted when all courses and degree requirements met
Form G	<a href="#">Ph.D. Candidacy Procedure Completion</a>	After candidacy procedure completed and approved by committee
Form H	<a href="#">Final degree program form - Ph.D.</a>	Updated each semester (student and advisor), completed and submitted when all courses and degree requirements met
	<a href="#">Graduate student withdrawal form</a>	Notice of withdrawal or leave of absence form for Graduate students only