



Department of Materials Science and Engineering

Ph.D. Student Handbook

Last Revision Date: 12/12/2018

Note: The information contained in this graduate handbook template focuses on the resources and locations available at the Carnegie Mellon Pittsburgh Campus.

Table of Contents

Welcome	3
Degrees Offered	3
University Policies & Expectations	3
Carnegie Mellon University Statement of Assurance	3
The Carnegie Mellon Code	4
University Resources	4
<i>Office of the Assistant Vice Provost for Graduate Education</i>	4
<i>Office of the Dean Student Affairs</i>	5
<i>Assistance for Individuals with Disabilities</i>	5
<i>Counseling & Psychological Services</i>	6
<i>Office of International Education (OIE)</i>	6
<i>Eberly Center for Teaching Excellence</i>	6
<i>Graduate Student Assembly</i>	6
<i>Intercultural Communication Center (ICC)</i>	7
<i>Health Services</i>	7
<i>Veterans and Military Community</i>	7
<i>University Police</i>	7
The Word	8
Graduate Study in Materials Science and Engineering: General Information	9
Department Personnel	9
<i>MSE Faculty</i>	9
<i>MSE Staff</i>	9
Doctor of Philosophy	10
Other Doctoral Program Requirements	14
Transfer Credit	16
Academic Integrity	16
<i>Policy Statement</i>	17
<i>Policy Violations</i>	17
University Policies	18
<i>Policy Against Sexual Harassment and Sexual Assault</i>	18
<i>Maternity Accommodation Protocol</i>	19
Department Policies	19
<i>Grading Policy</i>	19
<i>Graduate Student Time Off Policy</i>	19
<i>Dissertation Document Standards</i>	20
<i>Departmental Purchases</i>	20
<i>Reimbursements</i>	20
<i>Travel</i>	20

Department Resources	22
<i>Graduate Ombudsperson</i>	22
<i>Financial Aid</i>	22
<i>Graduate Student Advisory Committee (GSAC).....</i>	22
Miscellaneous Items of Interest.....	23
<i>General Office Procedures.....</i>	23
Keys.....	23
Mail	23
Addressing Campus Mail.....	23
<i>Carnegie Mellon’s Mailing Address</i>	23
<i>Telephone Calls.....</i>	23
<i>University Center Stores (computer store, book store, art store, etc.)</i>	23
<i>Physics Stockroom (7415 Wean Hall)</i>	23
<i>Copying and Scanning</i>	24
<i>Departmental Printers.....</i>	24
MSE Gas Order Requisition and Return Procedure.....	25
Appendix – Checklist & Forms	26

Welcome

Welcome to the graduate program in Materials Science and Engineering at Carnegie Mellon University. The Department of Materials Science and Engineering (MSE) is one of seven academic departments in Carnegie Institute of Technology, the engineering college at Carnegie Mellon. MSE has a long and distinguished tradition in materials education and research, and today our faculty continue to address the more important and challenging issues at the forefront of science and technology.

Materials Science and Engineering is an interdisciplinary activity that applies the principles of basic sciences and engineering to understanding the behavior of materials, their development and applications. Both our undergraduate and graduate students are exposed to this interdisciplinary approach.

Degrees Offered

The Materials Science and Engineering department offers three graduate degrees:

Master of Science in Materials Science and Engineering (MSE)

Master of Science in Materials Science (MATSCI)

Doctor of Philosophy in Materials Science and Engineering

University Policies & Expectations

It is the responsibility of each member of the Carnegie Mellon community to be familiar with university policies and guidelines. In addition to this departmental graduate student handbook, the following resources are available to assist you in understanding community expectations:

- The Word/Student Handbook: <http://www.cmu.edu/student-affairs/theword//index.html>
- Academic Integrity Website: <http://www.cmu.edu/academic-integrity>
- University Policies Website: <http://www.cmu.edu/policies/>
- Graduate Education Website: <http://www.cmu.edu/graduate/policies/index.html>
- College of Engineering Website: <https://engineering.cmu.edu/education/academic-policies/index.html>

Carnegie Mellon University Statement of Assurance

Carnegie Mellon University does not discriminate in admission, employment, or administration of its programs or activities on the basis of race, color, national origin, sex, handicap or disability, age, sexual orientation, gender identity, religion, creed, ancestry, belief, veteran status, or genetic information. Furthermore, Carnegie Mellon University does not discriminate and is required not to discriminate in violation of federal, state, or local laws or executive orders.

Inquiries concerning the application of and compliance with this statement should be directed to the vice president for campus affairs, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone 412-268-2056.

Obtain general information about Carnegie Mellon University by calling 412-268-2000.

The Statement of Assurance can also be found on-line at:

<http://www.cmu.edu/policies/administrative-and-governance/statement-of-assurance.html>

The Carnegie Mellon Code

Students at Carnegie Mellon, because they are members of an academic community dedicated to the achievement of excellence, are expected to meet the highest standards of personal, ethical and moral conduct possible.

These standards require personal integrity, a commitment to honesty without compromise, as well as truth without equivocation and a willingness to place the good of the community above the good of the self. Obligations once undertaken must be met, commitments kept.

As members of the Carnegie Mellon community, individuals are expected to uphold the standards of the community in addition to holding others accountable for said standards. It is rare that the life of a student in an academic community can be so private that it will not affect the community as a whole or that the above standards do not apply.

The discovery, advancement and communication of knowledge are not possible without a commitment to these standards. Creativity cannot exist without acknowledgment of the creativity of others. New knowledge cannot be developed without credit for prior knowledge. Without the ability to trust that these principles will be observed, an academic community cannot exist.

The commitment of its faculty, staff and students to these standards contributes to the high respect in which the Carnegie Mellon degree is held. Students must not destroy that respect by their failure to meet these standards. Students who cannot meet them should voluntarily withdraw from the university.

The Carnegie Mellon Code can also be found on-line at:

<https://www.cmu.edu/student-affairs/theword/code/index.html>

University Resources

Office of the Assistant Vice Provost for Graduate Education

<http://www.cmu.edu/graduate>; grad-ed@cmu.edu

The Office of the Assistant Vice Provost for Graduate Education, AVPGE, directed by Suzie Laurich-McIntyre, Assistant Vice Provost for Graduate Education, provides central support for graduate students in a number of roles. These include: being an ombudsperson and resource person for graduate students as an informal advisor; resolving formal and informal graduate student appeals; informing and assisting in forming policy and procedures relevant to graduate students; and working with departments on issues related to graduate students and implementation of programs in support of graduate student development.

The Office of the Assistant Vice Provost for Graduate Education (AVPGE) offers a robust schedule of professional development opportunities. Some are geared towards a specific population (master's students, PhD students at the beginning of their program, graduate students seeking tenure track positions, etc.) and others are open to all graduate students (time management, balancing, staying healthy).

The Office of the AVPGE also coordinates several funding programs, and academically focused seminars and workshops that advise, empower and help retain all graduate students, particularly graduate students of color and women in the science and technical fields. The fundamental goals of our programs have been constant: first, to support, advise and guide individual graduate students

as they work to complete their degrees; second, to contribute to the greatest degree possible to the diversification of the academy. Visit the Graduate Education website for information about:

- Conference Funding Grants
- Graduate Small Project Help (GuSH) Research Funding
- Graduate Student Professional Development: seminars, workshops and resources
- Graduate Women Gatherings (GWG)
- Inter-university Graduate Student of Color Series (SOC)

Office of the Dean Student Affairs

<http://www.cmu.edu/student-affairs/index.html>

The Office of the Dean provides central leadership of the metacurricular experience at Carnegie Mellon. The offices that fall under the division of Student Affairs led by Dean of Student Affairs Gina Casalegno, include:

- Career and Professional Development Center
- Counseling & Psychological Services (CAPS)
- Housing & Dining Services
- Orientation & First Year Programs (*note: for undergraduate students*)
- Office of International Education (OIE)
- Student Activities
- Student Life

Holly Hippensteel, Assistant Dean of Student Affairs, serves as the point person in the division for graduate student resources and concerns. Graduate students will find the enrollment information for Domestic Partner Registration in the Office of the Dean of Student Affairs and on the website. The Office of the Dean of Student Affairs also manages the Emergency Student Loan (ESLs) process. The Emergency Student Loan service is made available through the generous gifts of alumni and friends of the university. The Emergency Student Loan is an interest-free, emergency-based loan repayable within 30 days. Loans are available to enrolled students for academic supplies, medication, food or other expenses not able to be met due to unforeseeable circumstances.

Assistance for Individuals with Disabilities

<http://www.cmu.edu/education-office/disability-resources/>

The Office of Disability Resources at Carnegie Mellon University has a continued mission to provide physical and programmatic campus access to all events and information within the Carnegie Mellon community. We work to ensure that qualified individuals receive reasonable accommodations as guaranteed by the Americans with Disabilities Act (ADA) and Sections 503 and 504 of the Rehabilitation Act of 1973. Students who would like to receive accommodations must submit a “Voluntary Disclosure of Disability Form” to access@andrew.cmu.edu to begin the interactive accommodation process.

For more information, please see <http://www.cmu.edu/education-office/disability-resources/>. Students with disabilities are encouraged to self-identify with Equal Opportunity Services by contacting Catherine Getchel, 412-268-6121, getchell@cmu.edu to access the services available at the university and initiate a request for accommodations.

Counseling & Psychological Services

<http://www.cmu.edu/counseling/>

Counseling & Psychological Services (CAPS) affords the opportunity for students to talk privately about issues that are significant for them in a safe, confidential setting. Students sometimes feel confused about why they are feeling upset and perhaps confused about how to deal with it. An initial consultation with a CAPS therapist will clarify options and provide a recommendation to the appropriate mental health resource at Carnegie Mellon or the larger Pittsburgh community. CAPS services are provided at no cost. There are, however, limits on the number of sessions. Follow-up psychiatric services and off-campus referrals for longer term therapy are at the client's expense. Appointments can be made in person or by telephone, 412-268-2922.

Office of International Education (OIE)

<http://www.cmu.edu/oie/>

Carnegie Mellon hosts international graduate and undergraduate students who come from more than 90 countries. OIE is the liaison to the University for all non-immigrant students and scholars. OIE provides many services including: advising on personal, immigration, academic, social and acculturation issues; presenting programs of interest such as international career workshops, tax workshops, and cross-cultural and immigration workshops; supporting international and cultural student groups such as the International Student Union and the International Spouses and Partners Organization; maintaining a resource library that includes information on cultural adjustment, international education and statistics on international students in the United States; posting pertinent information to students through email and the OIE website, and conducting orientation programs.

Eberly Center for Teaching Excellence

<http://www.cmu.edu/teaching>

Support for graduate students who are or will be teaching is provided in many departments and centrally by the Eberly Center for Teaching Excellence. The Eberly Center offers activities for current and prospective teaching assistants as well as any graduate students who wish to pre-prepare for the teaching component of an academic career. The Center also assists departments in creating and conducting programs to meet the specific needs of students in their programs. Specific information about Eberly Center support for graduate students can be found at: <http://www.eberly.cmu.edu/services/graduate-students>

Graduate Student Assembly

<http://www.cmu.edu/stugov/gsa/index.html>

The Carnegie Mellon Student Government consists of an Executive Branch and a Legislative Branch. This is the core of traditional student government, as governed by the Student Body Constitution. The Executive Branch serves the entire student body, graduate and undergraduate, and consists of one president and four vice-presidents. The Legislative Branch for graduate students, The Graduate Student Assembly (GSA) passes legislation, allocates student activities funding, and otherwise acts on behalf of all graduate student interests. GSA also plans various social opportunities for graduate students and maintains a website of graduate student resources on and off-campus. Each department has representation on GSA and the department rep(s) is the main avenue of graduate student representation of and information back to the graduate students in the department.

Intercultural Communication Center (ICC)

<http://www.cmu.edu/icc/>

The Intercultural Communication Center (ICC) is a support service offering both credit and non-credit classes, workshops, and individual appointments designed to equip nonnative English speakers (international students as well as students who attended high school in the U.S.) with the skills needed to succeed in academic programs at Carnegie Mellon. In addition to developing academic literacy skills such as speaking, reading and writing, students can learn more about the culture and customs of the U.S. classroom. The ICC also helps international teaching assistants (ITAs) who are non-native English speakers develop fluency and cultural understanding to teach successfully at Carnegie Mellon and provides ITA testing.

Health Services

<http://www.cmu.edu/HealthServices/>

University Health Services (UHS) is staffed by physicians, advanced practice clinicians and registered nurses who provide general medical care, allergy injections, first aid, gynecological care and contraception as well as on-site pharmaceuticals. There is a small visit fee to see the physicians and advanced practice clinicians; nurse visits are free of charge. Fees for prescription medications, laboratory tests, diagnostic procedures and referral to the emergency room or specialists are the student's responsibility. UHS also has a registered dietician and health promotion specialist on staff to assist students in addressing nutrition, drug and alcohol and other healthy lifestyle issues. In addition to providing direct health care, UHS administers the Student Health Insurance Program. The Student Health insurance plan offers a high level of coverage in a wide network of health care providers and hospitals. It also covers most of the fees for care at Student Health Services. Graduate students should contact UHS to discuss options for health insurance for spouses, domestic partners and dependents. Appointments can be made by visiting UHS's website or by telephone, 412-268-2157.

Veterans and Military Community

<http://www.cmu.edu/veterans/>

Military veterans are a vital part of the Carnegie Mellon University community. Graduate students can find information on applying veteran education benefits, campus services, veteran's groups at CMU, non-educational resources and international military service information through the Veterans and Military Community website. There are also links and connections to veteran resource in the Pittsburgh community. The Naval ROTC and Veteran Affairs Offices are located at 4615 Forbes Avenue, uro-vaedbenefts@andrew.cmu.edu, 412-268-8747.

University Police

<http://www.cmu.edu/police/>

412-268-2323 (emergency only), 412-268-6232 (non-emergency)

The University Police Department is located at 300 South Craig Street, Room 199 (entrance is on Filmore Street). The department's services include police patrols and call response, criminal investigations, shuttle and escort services (additional information included in the Parking and Transportation section of the handbook below), fixed officer and foot officer patrols, event security, and crime prevention and education programming. Visit the department's website for additional information about the staff, escort and shuttle, emergency phone locations, crime prevention, lost and found, finger print services, and annual statistic reports.

Carnegie Mellon University publishes an annual campus security and fire safety report describing the university's security, alcohol and drug, sexual assault, and fire safety policies and containing statistics about the number and type of crimes committed on the campus and the number and cause

of fires in campus residence facilities during the preceding three years. Graduate students can obtain a copy by contacting the University Police Department at 412-268-6232. The annual security and fire safety report is also available online.

The Word

<http://www.cmu.edu/student-affairs/theword/>

The Word is Carnegie Mellon University's student on-line handbook and is considered a supplement to the department (and sometimes college) handbook. The Word contains campus resources and opportunities, academic policy information and resources, community standards information and resources. It is designed to provide all students with the tools, guidance, and insights to help you achieve their full potential as a member of the Carnegie Mellon community. Information about the following is included in The Word (not an exhaustive list) and graduate students are encouraged to bookmark this site and refer to it often:

- Carnegie Mellon Vision and Mission
- Carnegie Code
- Academic Standards, Policies and Procedures
 - Educational Goals
 - Academic and Individual Freedom
 - Statement on Academic Integrity
 - Academic Policies and Procedures
- Campus Resources & Opportunities
 - Academic Resources
 - Campus and Community Engagement
 - Health, Safety, and Security Resources
 - Personal Development
 - Additional Services and Resources
- Community Standards, Policies and Procedures
 - Alcohol and Drugs Policy
 - Discriminatory Harassment
 - Disorderly Conduct
 - Equal Opportunity/Affirmative Action Policy
 - Freedom of Expression Policy
 - Health Insurance Policy
 - Immunization Policy
 - Missing Student Protocol
 - Non-Discrimination Policy
 - On-Campus Emergencies
 - Riotous and Disorderly Behavior
 - Safety Hazards
 - Sexual Assault and Harassment Policy
 - Smoking Policy
 - Workplace Threats and Violence Policy

Graduate Study in Materials Science and Engineering: General Information

Graduate education in the Department of Materials Science and Engineering (MSE) at Carnegie Mellon is established upon a very broad basis. Emphasis is given to a spectrum of material areas, including nanotechnology, biomaterials, materials processing, structural and electronic, magnetic and optical materials. Along with the fundamentals of structure, defect state, thermodynamics and transport phenomena that underlie the entire field, education is focused equally between the materials classes of metals, ceramics, semiconductors and composite materials. Thus, students interested in topics such as nano- or bio-technology, material synthesis and processing, mechanical behavior of materials, the interrelationship between structure and properties, ceramic-science and electronic, magnetic and optical materials will get a solid grounding in the fundamentals of these areas through the graduate curriculum. Courses in special technical subjects in other engineering and science departments, as well as specific research topics, provide the breadth needed for a balanced program and special degree options. The comprehensive nature of the overall program is indicated by departmental faculty interests, which are balanced between engineering and science, and focused on contemporary and future topics of relevance to the application of materials in society.

Graduate study in MSE is designed to provide students with a systematic development of the fundamental scientific and engineering principles that govern the behavior and application of all materials. Entering graduate students typically have undergraduate and sometimes graduate degree backgrounds in a wide range of disciplines in engineering and science. Programs of study are planned individually in consultation with the faculty and academic advisor. These programs may be directed toward fundamental science, engineering or a blend of the two, depending on the preference, capabilities and professional career goals of the student. Recommended courses often include those offered by other departments within College of Engineering or by other colleges within Carnegie Mellon.

Department Personnel

The Main office of the MSE department is located in 3325 Wean Hall. MSE Staff members are located in both Wean Hall and Roberts Hall. MSE staff are here to assist you in your pursuit of graduate study.

MSE Faculty

The MSE faculty are listed on our website:

<http://www.cmu.edu/engineering/materials/people/faculty/index.html>

MSE Staff

Please see our staff “point of contact” webpage to determine which staff member to contact for different items:

<https://www.cmu.edu/engineering/materials/people/staff/index.html>

Department Mailing Address:

Department of Materials Science and Engineering
Carnegie Mellon University
Wean Hall 3325
5000 Forbes Avenue
Pittsburgh, PA 15213
Telephone: 412-268-2700

Doctor of Philosophy

The Doctoral degree emphasizes the creation of new knowledge through extensive independent research, the interpretation of phenomena revealed by research, and the extraction of general principles upon which predictions can be made. In the MSE department, doctoral research can be conducted in a range of areas, including nanomaterials, biomaterials, materials for energy applications, metals, ceramics, electronic materials, and magnetic materials. Each Doctoral student's research is guided by a faculty advisor and a dissertation committee with milestones that allow graduation in four years or less. The milestones and expectations for doctoral students are described below.

Admission to the Doctoral Program

Applicants must supply the following materials to qualify for admission:

1. Official transcripts from previous degree programs
2. Essay questions
3. The results of GRE/TOEFL exams
4. Three letters of reference
5. The application fee

All admissions decisions are made by the Department Head, based on recommendations from the graduate recruiting committee. A typical student qualifying for admission will have an undergraduate GPA greater than 3.0, a verbal GRE score greater than 146, a quantitative GRE score greater than 159, and an analytical GRE score greater than or equal to 3.0. For non-US citizens studying outside the US, the TOEFL score should exceed 84 (with 22 as individual sub-score). In 2015, the average TOEFL score for the students admitted from outside the United States was 106.

Each year, we enroll between 15 and 25 doctoral students. The average quantitative characteristics of the students who enrolled in the doctoral program in 2018 are shown in the table below.

	GRE verbal	GRE quantitative	GRE Analytical	GPA*
Enrolled	159	165	3.9	3.78

* GPA at the time of application and, for averaging purposes, all were put on a 4.0 scale.

Selection of Thesis Topic and Advisor

There are two mechanisms for the selection of a Ph.D. advisor: (1) *pre-selection*: an incoming graduate student communicates with one or more potential research advisors during the Summer months after admission to the program, and comes to a mutual agreement with a particular advisor *before the first day of classes in August*; or (2) *graduate student pool*: those students who do not pre-select an advisor must spend time during the month of September talking to potential research advisors, based on a list of available research projects that will be made available by the department. Individual faculty members who have open slots will give short presentations describing their research project(s). By mid-October, each student in the pool must submit a list of three research projects, ranked from top choice to third choice. The MSE faculty will then attempt to assign all pool students to one of their top choices by the end of October.

First Year Qualification

At the end of each academic year, the MSE faculty will review the academic and research performance of each first year doctoral student to determine if they are qualified for continued study. The main factors are the candidate's core and two-semester QPAs, and their advisor's assessment of research performance. If the candidate passes this review, then he/she will continue as a student in good standing. If the candidate fails the review they will leave the doctoral program at the end of the year. This decision is based on faculty consensus. The review process will be based on the MSE Graduate Qualification Checklist document found in Appendix A.

Research Requirements for the Doctoral Degree

Doctoral degrees are awarded primarily for demonstrated excellence in research. Each candidate's progress toward a doctorate is monitored by written reports submitted annually at the beginning of the Fall semester (see template in Appendix B). The candidate's accomplishments are evaluated by the student's advisor and by the Department Head. There are four major steps in a candidate's advancement toward a doctoral degree: A Research Performance Evaluation, Selection of a Dissertation Committee, a Thesis Overview, and a Dissertation Defense. Each of these steps is described in detail below.

The Research Performance Evaluation (RPE)

Before the end of the third semester, each candidate must take a research performance evaluation. The research performance evaluation committee consists of three MSE faculty members, at least two of whom have primary affiliations in the MSE Department; two committee members are selected by the candidate and the advisor, and one is appointed by the Department Head.

The candidate will prepare a written proposal of not more than 15 pages that will be delivered to the committee members at least ten days prior to the evaluation. The candidate must also bring the yellow exam confirmation card to the meeting (for the faculty to sign). During the exam, the candidate makes an oral presentation of their thesis proposal lasting not more than 30 minutes. The slides for the presentation must be numbered sequentially. The presentation is followed by questions from the committee. Only MSE faculty members are permitted to attend the Research Performance Evaluation.

During the research performance evaluation, the candidate is expected to demonstrate:

1. a fundamental understanding of the research goals of the project
2. a knowledge of background literature related to the project
3. an understanding of the research tools that are used to accomplish project goals
4. a hypothesis for the experiments performed to date and for the immediate future
5. an ability to develop a research plan
6. an ability to produce and analyze their own research results
7. an ability to integrate materials fundamentals that are relevant to the project

The RPE committee members each fill out an "MSE RPE Committee Checklist and Evaluation Instructions" form (see Appendix C). At the conclusion of the evaluation, the candidate receives immediate oral feedback on both the strengths and the weaknesses in all areas listed above, and the results are communicated to the Department. The candidate will be provided with a written summary of the RPE within two weeks. Passing this evaluation allows candidates to remain in the Ph.D. program. If a candidate fails this evaluation, they may be permitted to make a second attempt before the end of the fourth semester. In such cases, a new committee is selected with one member from the original committee and two new members.

Selection of Dissertation Committee

The candidate, in consultation with the advisor, should arrange a doctoral thesis committee before the beginning of the fifth semester. The doctoral thesis committee will be chaired by the advisor, and will have at least three additional members. The requirements for the committee are that at least two of the members have a primary affiliation with the MSE department¹ and at least one of the members is not primarily affiliated² with the MSE department. The candidate should carefully choose committee members who can provide supplemental resources, stimulate critical thinking, and assist in the candidate's development. As such, the candidate is strongly encouraged to interact regularly with his/her committee members.

The candidates should continue to further develop their proposal presented at the RPE detailing the research plan and updating the timeline, results, and analysis sections. These developments should be discussed with doctoral thesis committee members, either individually or as a group, by the beginning of the fifth semester.

¹ "primarily affiliated" MSE faculty are those whose salary is at least partially paid by the MSE department.

² "not primarily affiliated" includes qualified people who may not be employed by CMU, CMU faculty from other departments, CMU faculty who have a courtesy appointment in MSE, and MSE adjunct faculty.

The Thesis Overview

Before the beginning of the seventh semester, the candidate must convene their thesis committee for an overview of her/his dissertation.

The candidate should prepare a written document and an oral presentation that convey and justify her/his plan for completing her/his dissertation. The written document and the 20-30 minute presentation should be prepared in accordance with the standards for a final dissertation but are expected to be briefer; the document must be distributed to committee members at least ten (10) days prior to the oral presentation. A plan and a projected timeline to carry out the necessary work to complete their dissertation should be given in the presentation. It is the candidate's responsibility to post a public announcement in the department at least two weeks prior to the date of the exam that includes the following information: the date, time, place, candidate name, title, and dissertation committee. The candidate must also bring the yellow exam confirmation card to the meeting (for the faculty to sign).

It is important to emphasize that, at the time of the overview, there may be considerable work remaining before the thesis is completed and conclusive findings may not yet have been reached. However, the overview presentation and document should demonstrate the following five items:

1. The candidate is able to place their research in the context of the background literature and defend how their research represents (will represent) an advancement of the state of knowledge in the field.
2. A clear hypothesis (or clear hypotheses) has guided the production and analysis of publishable research results.
3. The path to reach the stated goals of the thesis is clear and the candidate has mastered the skills required to complete the research; questions of feasibility should be largely absent.
4. The scope of the research, analysis, and integration are deemed appropriate by the committee to form an acceptable Ph.D. dissertation.

5. The student must attach as a separate appendix or a clearly labeled chapter within the main body of the document, a copy of each manuscript for which that student is an author. The candidate must attach a detailed plan for how the research results will be disseminated in peer-reviewed journals. The committee will provide feedback on the publication plan.

At the conclusion of the overview, the committee shall meet in private to prepare written comments for the candidate that include feedback on the four points above, as well as suggestions for enhancing the quality of the thesis. Each committee member will fill out a Thesis Overview Feedback Form (see Appendix D); after the overview, the advisor fills out a Thesis Overview Feedback Summary Form (see Appendix E) that is afterwards provided to the student. This form, with a written response, must accompany the final thesis hard copy when submitted to the committee. If the committee is not satisfied that the overview demonstrates a feasible plan for the thesis, the candidate may be asked to repeat the overview between four and six months after the initial examination. Approval of the committee is a requirement for continuation in the doctoral program.

The Ph.D. Dissertation

The doctoral dissertation must embody the results of extended research, be an original contribution to knowledge, and include material worthy of publication. It should demonstrate the candidate's ability to conduct an independent investigation, to abstract principles upon which predictions can be made, and to interpret in a logical manner facts and phenomena revealed by the research.

The written dissertation must be prepared according to the college guidelines summarized at: http://www.cit.cmu.edu/current_students/graduates/thesis_dissertation_policies.html#manuscript. The thesis document (hard copy + soft copy) along with a response to the Thesis Overview Feedback Summary Form must be submitted to the committee at least three (3) weeks before the tentative defense date. The committee members have one week to verify that the overview comments were properly incorporated in the thesis document. If the dissertation is accepted by the Committee, the candidate is eligible for a final public examination. If not, then the committee informs the student in writing of deficiencies that need to be resolved before a new thesis defense date can be scheduled. The committee decides by majority vote, with a tied vote resolved by the Department Head. It is the candidate's responsibility to post a public announcement in the department at least two weeks prior to the date of the defense that includes the following information: the date, time, place, candidate name, title, and dissertation committee. The candidate must also bring the yellow exam confirmation card to the meeting (for the faculty to sign).

Upon satisfactorily passing this examination, the candidate will be recommended for the doctoral degree. One original and three copies of the dissertation must be presented to the Department Head. The original must be forwarded to the Dean of the College of Engineering for approval. The dissertation must be acceptable to University Microfilms, Inc. for the microfilming of doctoral dissertations, in which all candidates are required to participate.

Course Requirements for the Doctoral Degree

In addition to the research requirements, doctoral students are also required to complete 96 units of course work. This includes 36 units of MSE core classes that must be completed in the first semester (see table below). The remaining units may be made up of graduate level classes in the MSE department or graduate level classes in the other departments within CIT (Carnegie Institute of Technology) or MCS (Mellon College of Science). Classes outside of MSE must be approved by the student's advisor. While the 96 unit curriculum should be comprised entirely of graduate

classes, it is generally permissible to include one senior level MSE undergraduate class, with the exception of 27-454, 27-555, and 27-556.

MSE Core Courses (required)

Number	Title	units
27-798	Thermodynamics I	6
27-799	Thermodynamics II	6
27-788	Defects in Materials	6
27-766	Diffusion in Materials	6
27-796	Structure of Materials	6
27-797	Bonding in Materials	6

To remain a candidate for the Ph.D. degree, a student must have a QPA greater than or equal to 3.0 for the MSE core courses taken in the first semester or have a QPA greater than or equal to 3.0 by the end of the first two semesters in graduate level coursework that includes the MSE core courses. The first year QPA calculation includes only courses offered by the MSE department. Courses involving independent study or supervised reading are not counted toward the 96 unit requirement and are not used in the calculations to the QPA. Finally, all of the courses in the 96 unit graduate curriculum must be taken for credit and completed with a QPA greater than or equal to 3.0 by the time of graduation (thus, pass/fail classes cannot be counted toward degree requirements).

Other Doctoral Program Requirements

Graduate Seminar

All full-time graduate students must also enroll, attend and actively participate in the Graduate Seminar course, 27-774, each semester in which they are registered as full-time students. The goal of the seminar is to broaden each student's doctoral education through exposure to research performed by an international cadre of highly-respected external scientists. Students are graded according to the following guidelines:

1. The grade for the course is PASS or FAIL.
2. To pass, the only requirement is attendance, with no more than two unexcused absences. Unexcused include doctor's appointments, vacations, and any other absences that are not research related. Absences resulting from conference trips, visits to research sponsors, etc. are excused, but the seminar coordinator must be notified.
3. Students with more than two unexcused absences are expected to make this up by attending seminars given in other departments or talks by external speakers at the University.

Course Assistants

All graduate students in the department are expected to act as "course assistants." The duties of course assistants include grading homework, providing assistance to faculty and staff in laboratories and proctoring exams. Graduate students who are in their first or final semester of studies or are part-time are excused from participation in this activity. This activity, when averaged over the entire semester, should require no more than 3 hours per week.

English Language Requirement

In a continuing effort to improve technical and interpersonal communication, it is the policy of the department that all international students, whose first language is not English, should attempt to pass the Intercultural Communications Center's International Teaching Assistant (ITA) test before graduation at the doctoral level.

Performance Requirements to Maintain Status as a Doctoral Student.

1. Compliance with University policy and standards for research ethics.

All university academic policies, non-academic policies, and community standards are detailed in the student handbook: <http://www.studentaffairs.cmu.edu/theword/university/>.

In addition, students are expected to maintain ethical standards in their research. For reference, see: On being a scientist: Responsible Conduct in Research, which is available online at: <http://newton.nap.edu/html/obas/>. Violations of University policy or accepted ethical standards may result in immediate withdraw of financial support. To remain in the doctoral program, all students must complete the “Responsible Conduct of Research Certification” which is a web-based ethics training class. Please go to the following site: <https://www.cmu.edu/research-compliance/responsible-conduct/training.html>

2. Adequate progress in dissertation research.

Adequate progress is determined by the student's research advisor and committees for the RPE, thesis overview, and final dissertation. The research advisor and Department Head will notify the student if their progress is judged to be inadequate. If inadequate progress persists for a semester or more after notification, the student is no longer eligible for financial support or participation in the doctoral degree program.

3. Submission of a written annual report.

Each graduate student shall submit a research report each semester by the last day of classes, using the template provided in Appendix B. The advisor will evaluate the report and assign a letter grade, which then becomes the student's research grade for that semester. If the student's research progress is insufficient, according to the expectations of the advisor, then a letter grade no higher than a “C” will be assigned and the advisor will spell out in writing, as part of the research report, which aspects of research the student is expected to improve upon. A “C” grade also signifies department intervention. A student who has received a “C” grade will receive close scrutiny during the next semester's research report evaluation; the student is expected to specifically describe how he/she has addressed any issue(s). Two consecutive semesters with a “C” or below grade automatically imply termination from the graduate degree program.

4. Completion of Research Performance Evaluation by the end of the third semester.

Doctoral students are required to take a Research Performance Evaluation by the end of the third semester. Students who do not complete the exam are not eligible for financial support. If a student fails this evaluation, there may be a possibility for a second attempt before the end of the fourth semester. If the exam has not been passed by the end of the fourth semester, the student is no longer eligible for financial support or participation in the doctoral degree program.

5. Completion of the thesis overview before the beginning of the seventh semester.

Doctoral students are required to complete their thesis overview before the beginning of the seventh semester. Students who do not complete the overview are not eligible for financial support. If the overview is judged to be inadequate, the candidate has no more than six months to satisfy the committee. If at the end of the six months the committee still has not approved of the overview, the student is no longer eligible for financial support or participation in the doctoral degree program.

6. Students must have a QPA greater than or equal to 3.0 for the MSE core courses taken in the first semester or have a QPA greater than or equal to 3.0 by the end of the first two semesters in graduate level coursework that includes the MSE core courses, but does not include independent

study, supervised reading, or similar courses. The QPA is one of the factors considered in the candidate's first year qualification and annual review.

Transfer Credit

Carnegie Mellon University offers students the opportunity to take courses for credit through a cross-registration program (see Pittsburgh Council on Higher Education (PCHE) and Cross-registration below) and through the receipt of transfer credit from other accredited institutions. The Carnegie Mellon University transcript will include information on such courses as follows: Carnegie Mellon courses and courses taken through the university's cross-registration program will have grades recorded on the transcript and be factored into the QPA. All other courses will be recorded on this transcript indicating where the course was taken, but without grade. Such courses will not be taken into account for academic actions, honors or QPA calculations. (Note: suspended students may take courses elsewhere; however, they may receive transfer credit only if their college's and department's policies allow this.)

The Department of Materials Science and Engineering will accept up to 24 units (2 courses) of graduate transfer credit toward the M.S. degree in according to the policies outlined in the College of Engineering website:

<https://engineering.cmu.edu/education/academic-policies/graduate-policies/registration-grading-credit.html#transfer-credit-&-special-students>

Only official and final college or university transcripts will be accepted for the awarding of transfer credit. Grade reports, letters and the like are not acceptable. Official transcripts for the awarding of transfer credit will reside in the student's permanent academic folder in the department.

Transfer units will be accepted for:

- Graduate level courses that have not been counted toward a previous degree at another university
- Courses with a 3.0 GPA or higher
- Courses that can be considered part of the M.S. graduate program in the MSE department
- Grades for transfer units will not be counted in the Carnegie Mellon GPA

**Students must have successfully completed at least 36 units in the graduate program before the units can be transferred.*

Policy on Grades for Transfer units: The Carnegie Mellon University transcript will include information on such courses as follows: Carnegie Mellon courses and courses taken through the university's cross-registration program will have grades recorded on the transcript and be factored into the QPA. All other courses will be recorded on this transcript indicating total units, but without grade. Such courses will not be taken into account for academic actions, honors or QPA calculations.

Academic Integrity

<http://www.cmu.edu/policies/student-and-student-life/academic-integrity.html>

Students at Carnegie Mellon are engaged in intellectual activity consistent with the highest standards of the academy. The relationship between students and instructors and their shared commitment to overarching standards of respect, honor and transparency determine the integrity of our community of scholars. The actions of our students, faculty and staff are a representation of our university community and of the professional and personal communities that we lead. Therefore, a

deep and abiding commitment to academic integrity is fundamental to a Carnegie Mellon education. Honesty and good faith, clarity in the communication of core values, professional conduct of work, mutual trust and respect, and fairness and exemplary behavior represent the expectations for ethical behavior for all members of the Carnegie Mellon community.

Policy Statement

In any manner of presentation, it is the responsibility of each student to produce her/his own original academic work. Collaboration or assistance on academic work to be graded is not permitted unless explicitly authorized by the course instructor(s). Students may utilize the assistance provided by Academic Development, the Global Communication Center, and the Academic Resource Center (CMU-Q) unless specifically prohibited by the course instructor(s). Any other sources of collaboration or assistance must be specifically authorized by the course instructor(s).

In all academic work to be graded, the citation of all sources is required. When collaboration or assistance is permitted by the course instructor(s) or when a student utilizes the services provided by Academic Development, the Global Communication Center, and the Academic Resource Center (CMU-Q), the acknowledgement of any collaboration or assistance is likewise required. This citation and acknowledgement must be incorporated into the work submitted and not separately or at a later point in time. Failure to do so is dishonest and is subject to disciplinary action.

Instructors have a duty to communicate their expectations including those specific to collaboration, assistance, citation and acknowledgement within each course. Students likewise have a duty to ensure that they understand and abide by the standards that apply in any course or academic activity. In the absence of such understanding, it is the student's responsibility to seek additional information and clarification.

Policy Violations

Cheating occurs when a student avails her/himself of an unfair or disallowed advantage which includes but is not limited to:

1. Theft of or unauthorized access to an exam, answer key or other graded work from previous course offerings.
2. Use of an alternate, stand-in or proxy during an examination.
3. Copying from the examination or work of another person or source.
4. Submission or use of falsified data.
5. Using false statements to obtain additional time or other accommodation.
6. Falsification of academic credentials.

Plagiarism is defined as the use of work or concepts contributed by other individuals without proper attribution or citation. Unique ideas or materials taken from another source for either written or oral use must be fully acknowledged in academic work to be graded. Examples of sources expected to be referenced include but are not limited to:

1. Text, either written or spoken, quoted directly or paraphrased.
2. Graphic elements.
3. Passages of music, existing either as sound or as notation.
4. Mathematical proofs.
5. Scientific data.

6. Concepts or material derived from the work, published or unpublished, of another person.

Unauthorized assistance refers to the use of sources of support that have not been specifically authorized in this policy statement or by the course instructor(s) in the completion of academic work to be graded. Such sources of support may include but are not limited to advice or help provided by another individual, published or unpublished written sources, and electronic sources. Examples of unauthorized assistance include but are not limited to:

1. Collaboration on any assignment beyond the standards authorized by this policy statement and the course instructor(s).
2. Submission of work completed or edited in whole or in part by another person.
3. Supplying or communicating unauthorized information or materials, including graded work and answer keys from previous course offerings, in any way to another student.
4. Use of unauthorized information or materials, including graded work and answer keys from previous course offerings.
5. Use of unauthorized devices.
6. Submission for credit of previously completed graded work in a second course without first obtaining permission from the instructor(s) of the second course. In the case of concurrent courses, permission to submit the same work for credit in two courses must be obtained from the instructors of both courses.

Procedures for dealing with allegations of these policy violations are detailed in the university's Academic Disciplinary Action Procedures for Undergraduate Students and the Academic Disciplinary Action Procedures for Graduate Students, which are published in The WORD student handbook. Periodic review of these procedures will be overseen by the Dean of Student Affairs or her/his designee in consultation with Faculty Senate and the relevant student governing bodies. Any amendments to these procedures are subject to the approval of Faculty Senate. Additional guidelines and procedures for graduate students may exist at the college/department/program level, in which case they are communicated in the college/department/program graduate student handbook.

University Policies

Policy Against Sexual Harassment and Sexual Assault

Sexual harassment and sexual assault are prohibited by CMU, as is retaliation for having brought forward a concern or allegation in good faith. The policy can be viewed in its entirety at: http://www.cmu.edu/policies/documents/SA_SH.htm. If you believe you have been the victim of sexual harassment or sexual assault, you are encouraged to make contact with any of the following resources:

- Office of Title IX Initiatives, <http://www.cmu.edu/title-ix/>, 412-268-7125
- Sexual Harassment Advisors, found in appendix A of the Policy Against Sexual Harassment and Sexual Assault;
- Survivor Support Network, found in appendix B of the Policy Against Sexual Harassment and Sexual Assault;
- Sexual Harassment Process and Title IX Coordinators, found in section II of the Policy Against Sexual Harassment and Sexual Assault;
- University Police, 412-268-2323

- University Health Services, 412-268-2157
- Counseling & Psychological Services, 412-268-2922

Maternity Accommodation Protocol

Students whose anticipated delivery date is during the course of the semester may consider taking time away from their coursework and/or research responsibilities. All female students who give birth to a child while engaged in coursework or research are eligible to take either a short-term absence or formal leave of absence. Students in course work should consider either working with their course instructor to receive incomplete grades, or elect to drop to part-time status or to take a semester leave of absence. Students engaged in research must work with their faculty to develop plans for the research for the time they are away.

Students are encouraged to consult with relevant university faculty and staff as soon as possible as they begin making plans regarding time away. Students must contact the Office of the Dean of Student Affairs to register for Maternity Accommodations. Students will complete an information form and meet with a member of the Dean's Office staff to determine resources and procedures appropriate for the individual student. Planning for the student's discussion with her academic contact(s) (advisor, associate dean, etc.) will be reviewed during this meeting.

Department Policies

Grading Policy

The general grading policy used by the MSE Department is described on the [university grading policy page](#). The following are college-specific policies for graduate grading.

Project work may be given an S (Satisfactory) grade on a semester-by-semester basis, but a letter grade (A, A-, B+, B, B-, C+, C, C-, D+, D, or R) must be given in the final semester for a multi-semester project. The units with an S grade are counted toward degree requirements but are not included in computing the average grade. <https://engineering.cmu.edu/education/academic-policies/graduate-policies/registration-grading-credit.html>

Graduate Student Time Off Policy

Students with graduate assistantships are expected to continue with their research during academic breaks (including Summer months) with the exception of official University holidays*.

Paid time off for personal business or vacations generally is not included as part of a graduate's financial support. A supported graduate student who wants to take a short break (up to ten days) must get approval for that break from his/her advisor and, if required by the terms of the student's support package, must make up the work. Supported graduate students wishing to take longer periods of personal time off must do so without financial support and must receive approval from their advisor at least five weeks prior to the requested time off. The advisor will notify the Department's Business Office of any such arrangements so that an appropriate adjustment in the student's support package can be processed.

***University Holidays:**

- | | |
|---------------------------------|---------------------------------|
| ○ <i>New Year's Day</i> | ○ <i>Thanksgiving Day</i> |
| ○ <i>Martin Luther King Day</i> | ○ <i>Day After Thanksgiving</i> |
| ○ <i>Memorial Day</i> | ○ <i>Day Before Christmas</i> |

- *Independence Day*
- *Labor Day*

- *Christmas Day*
- *Day Before New Year's Day*

Dissertation Document Standards

The thesis or dissertation must be a document of the best professional standards. It is also good practice for the student to prepare a document that meets the criteria for publication in the relevant professional journals. As the original copy of the thesis or dissertation will be kept in the University Libraries, and copied for microfilming and other purposes, the paper and the production must conform to standards of long archive life and clear reproducibility. In addition, an electronic copy of the thesis or dissertation is required by the College of Engineering for archiving by the department. Current document standards can be found on the College of Engineering's [website](#).

Departmental Purchases

Each faculty member's administrator is authorized to place the order, but you must provide a complete order form. ***Students are not authorized buyers on behalf of the University.*** An account number for allocating the purchase to the proper contract can be supplied to you by your advisor. The same order form is used for both PNC Card & Purchase Orders – which you can obtain from your advisor's administrator.

Before presenting the order form to your advisor's administrator, please be sure to complete the "Requestor's Name" line and obtain your advisor's signature on the "Faculty's Signature" line.

Reimbursements

You may be reimbursed for work related purchases. These should have the approval of your faculty advisor prior to purchase. *Please note: CMU will not reimburse sales tax on any purchases you made even if the purchase was for university related work.* Present the receipt(s) and account number to your faculty advisor's administrator. **Please note that it is university policy to submit a receipt for reimbursement within 30 days of incurring the expense.**

You are strongly recommended to sign up for expense reimbursement deposit.

Travel

You will be asked to travel on university/MSE business occasionally and will be expected to keep the costs within reasonable limits and to follow consistent policy and procedures with respect to the reimbursement of these expenses.

Keep all receipts and records (mileage traveled in your own vehicle, for example).

Non-reimbursable expenses:

- In-room movies
- Laundry or valet services
- Personal grooming services (barbers, hairdressers and shoe shines)
- Personal telephone charges in excess of reasonable calls home, usually one per day
- Parking tickets or traffic violations
- Recreational fees
- Upgrades (air, hotel, car, etc.)
- Tickets purchased with frequent flier miles

Your faculty advisor must approve all trips for which you will be reimbursed.

The MSE departmental approver will check your travel request to see that it meets university guidelines, that the total cost will be within the approved budget, and that the expenses are charged to the proper accounts.

Domestic Travel: Domestic travel is any travel within and between any of the 50 states of the United States. Travel to Mexico and Canada is also considered domestic.

Foreign Travel: All foreign travel charged to grants and contracts must be approved from 45 to 90 days in advance by the sponsor's administrative officer. Complete the Request for Foreign Travel form (blank copy included in this manual) and submit it to the MSE business manager, Anita Connelly. The Office of Sponsored Research must countersign this form before it is submitted to the sponsoring agency.

You should make your flight reservations as soon as possible to obtain advance purchase discounts. A Request for Transportation Ticket form can be completed and forwarded to CMU's official travel agent allowing the airfare to be billed directly to a specific contract. Please request your advisor's administrator to complete this form by providing the purpose of travel, trip information, cost, and contract number. Your signature is also required on this form.

Rental Cars

Long distance travel by rental car is discouraged, since it increases travel time and places the university at higher risk for business travel accident liabilities.

Car rental agreements, for insurance reasons, should include "Carnegie Mellon" with the name of the individual.

Do not accept any insurance coverage on car rentals. Carnegie Mellon Business Auto Liability Policy covers loss Damage, Collision, Liability and personal accident coverage. If you accept this coverage on a car rental, you will not be reimbursed.

Actual Cost vs. Per Diem Reimbursements: A traveler can use one of these methods for the duration of a trip. Unless per diem allowance is claimed for the trip, receipts are required.

Actual Cost Reimbursement

- Total meal expense for the day should not exceed \$75.00.
- Individual meals over \$40 should include justification.
- Gratuities must fall within the domestic standard (15-20%) for the total bill.

Lodging receipts require:

- The name and location of the lodging establishment.
- The date of the stay.
- Itemized charges listing lodging, meals and telephone calls separately.

Meal receipts require:

- The name and location of the restaurant.
- The number of people served.
- The date and amount of expense.

Per Diem Reimbursement

Per Diem can be used for meals & incidentals. Domestic rates can be accessed at <http://www.gsa.gov/portal/category/100120>

Foreign per diem rates can be accessed at https://aoprals.state.gov/web920/per_diem.asp

Meals for Others

These expenses are reimbursable when the name(s) of the meal attendees are listed and the business purpose of the meal is justified.

One-Day Travel

In general, trips of less than 50 miles one way do not qualify for reimbursement for an overnight stay. The university, following IRS regulations, does not allow travel meal expense for one-day travel. Per-diem rates may not be used for one-day travel.

Department Resources

Graduate Ombudsperson

In the course of graduate studies, situations sometimes arise where students need advice on some aspect of their activities or interactions with others in the department, yet may not feel that it is appropriate to speak with their advisor or another member of the faculty. While close friends and family members are important resources in such situations, it is also true that their scope of experience might not include working toward a doctoral degree in an Engineering School. For this reason, the MSE department relies on a Graduate Ombudsperson. The Ombudsperson is available to consult with students about any situation that affects their work and, where appropriate, offer advice or attempt to resolve a problem. Conversations with the Ombudsperson are confidential and the Ombudsperson will not communicate information to the Department Head or other faculty members without the student's consent.

Dr. Neetha Khan (neetha@andrew.cmu.edu) serves as ombudsperson for graduate students to assist with difficult academic or personal situations where a confidential sounding board and/or an intermediary can be helpful.

Additionally, students may confer with the university graduate ombudsman, Suzie Laurich-McIntyre, slaurichmcintyre@cmu.edu, on issues of process or other concerns as they navigate conflicts. Suzie Laurich-McIntyre is the Assistant Vice Provost for Graduate Education.

Financial Aid

Graduate students should consult the graduate student financial aid information found on The HUB website: <http://www.cmu.edu/finaid/graduate/index.html>. Students will find the Graduate Financial Aid Guide, information about funding options and how to apply for financial aid and other helpful links.

Graduate students who find themselves in need of immediate funds for emergency situations should contact the Office of the Dean of Student Affairs (see Appendix A), www.cmu.edu/student-affairs/index.html, to inquire about an Emergency Student Loan.

Graduate Student Advisory Committee (GSAC)

GSAC consists of a group of students who volunteer to help in coordinating academic and social activities for other students, and provides a mechanism for communication and input to the Department on policy or other matters.

Miscellaneous Items of Interest

General Office Procedures

Keys

If you are working on a research project, your advisor must request a key for you for each specific lab.

Mail

You are assigned a mailbox at the end of the 3300 corridor of Wean Hall for receiving campus mail. If you have outgoing mail, either campus or regular, the postal clerk picks up the mail at 8:00 am.

Addressing Campus Mail

All campus mail should be addressed with the person's name, department, and building only.

Example: Kelly Rockenstein
Materials Science and Engineering
Wean Hall 3325

Carnegie Mellon's Mailing Address

To ensure that mail and/or packages arrive to the department without any problems, you should advise that shippers address the package in the following way:

Kelly Rockenstein
Carnegie Mellon University
5000 Forbes Avenue
Materials Science and Engineering Department
Wean Hall 3325
Pittsburgh, PA 15213

If space does not allow for that many lines – you can omit the department.

Telephone Calls

Campus calls

You must dial "8" and only the last four digits of a campus number.

Outside calls

You must dial "9" when dialing an outside toll-free line.

University Center Stores (computer store, book store, art store, etc.)

This requires a University Store Requisition form, completely filled out, with the signatures of your faculty advisor. This form can be obtained from your faculty advisor's administrator. Upon your return, please be sure to give the receipt to the administrator.

Physics Stockroom (7415 Wean Hall)

The Wean Hall Physics stockroom is located on the 7th floor. Items can be taken on "the honor system." In other words, complete the form located at the stockroom verifying your name, items taken, and the Oracle (contract) number assigned to the project for which the items will be used. If you're unsure of the Oracle number, please ask your advisor's faculty assistant for the information. Please don't abuse this system.

Copying and Scanning

The department has 2 color copiers/scanners you can use for research related-work in Wean Hall or in Roberts "Take 5" area. These machines perform many functions such as scanning, two-sided copying, collation, reduction and enlargements.

Departmental Printers

The MSE Department has two department printers that our students are permitted to print too. Please remember these printers are benefit to students, not a requirement. Therefore, any abuse or misuse of the equipment will result in your permissions removed or removal of the equipment for all students. If you notice an error with the printers or if the printer needs toner, you should contact Bill Pingitore (wp26@andrew.cmu.edu).

Below is all the information and instructions you will need to add the printers to your laptops/computers.

Location of Printers

Name: Jasper

URL Address: jasper.materials.cmu.edu

Location: Wean Hall Copy/Mail Room (end of 3300 corridor)

Model: HP CP4025N

To add a printer on a MAC:

Open the "Print & Fax" settings.

Press the + sign to add.

Protocol: LPD

Address: -use URL address above-

Printing Using: you should select "select a drive to use" and then find the model above.

MSE Gas Order Requisition and Return Procedure

The following is the gas order requisition and return procedure, which must be adhered to by all graduate students and visitors in the Materials Science and Engineering Department.

Students/visitors are to order all cylinders through the Main Office. **Please do not fax any orders in yourselves.**

Once the gas is received – email Jeanna the cylinder tank number. It is handwritten on the tag and/or on the barcode on the neck of the cylinder.

Before ordering any gas, make sure there is no redundancy with other colleagues. Gases may be shared within your advisor's group. For accounting purposes gases should not be shared among other research groups.

Order gas with an existing oracle charge account number.

When requesting a pick up of empty cylinders, send an email to Ray Butko (rbutko@andrew.cmu.edu) at Mellon Institute with the tank number(s) that need to be picked up and which lab they are in.

When returning gas cylinders, no matter the date of pick up rental expenditures coincide with the month of cylinder return. Thus, returning cylinders on Jan.1 or Jan.31 would be charged the same rental fees. It is strongly recommended that all empty gas cylinders are to be returned at the end of each month to avoid being over charged.

Remember that scheduled drop-offs/pick-ups are every Tuesday and Friday.

Your continued cooperation with this procedure is appreciated!!!

Appendix – Checklist & Forms

Appendix A: MSE First Year Qualification Checklist

CANDIDATE NAME: GRADUATE ADVISOR:

DATE:

The following checklist is to be used as a tool during the faculty discussion of individual graduate student qualifications, nominally during the May faculty meeting. This document is to be signed by the MSE department head and will be added to the student's file. Please circle the appropriate option for each statement.

1. Academic Performance

(a) Does the candidate have a core QPA of at least 3.0? YES / NO

(b) [if answer to question 1.a is NO]

Does the candidate have a two-semester QPA of at least 3.0? YES / NO

(c) [if answer to question 1.b is NO]

The candidate's academic performance must be discussed by the faculty.

All the candidate's grades should be made available for this discussion.

2. Research Performance

(a) Does the advisor feel that the candidate has performed satisfactorily? YES / NO

(b) [if answer to question 2.a is NO]

The candidate's research performance must be discussed by the faculty.

The candidate's Annual Report should be made available for this discussion.

3. Summary of discussions:

(a) Is the candidate's academic performance sufficient? YES / NO

(b) Is the candidate's research performance sufficient? YES / NO

If the outcomes from items 3a/3b are:

- YES/YES → automatic pass; no further discussion needed.
- NO/NO → automatic fail; no further discussion needed.
- YES/NO or NO/YES → further discussion needed, followed by a final majority vote.

Result of final vote: PASS/FAIL

Department Head Signature:

Appendix B: CMU MSE Graduate Student Annual Report

Instructions for preparing this report

1. *With the exception of 2.B. and 2.C., all sections of the report are intended to be cumulative.*
2. *Any table for which you have nothing to enter **may be deleted** from your report. However, please leave the section heading in place.*
3. *You can add additional rows to any table by placing the cursor at the far right of the table, just outside of the box, and hitting return.*
4. *Feel free to make copies of tables so as to span pages and maintain headings*
5. *Feel free to add/delete page breaks (if you view document in “normal mode”, you can select and delete page breaks).*
6. *Delete these and other instructions in italic*
7. **Have your advisor sign the report**
8. *The deadline for submission is the last day of classes each semester.*

Name	
Advisor	
Date of doctoral enrollment	
Tentative dissertation title	
Dissertation committee members	

1.A. Classes Completed

Course Number	Units	Grade	Course Title	Semester
Total Units =				

1.B. Research Completed

Course Number	Units	Grade	Course Title	Semester
27-775				
27-775				
27-775				
27-775				
27-775				
27-775				
27-775				
27-775				
27-775				
Total Units =				

2.A. Dissertation Research

Dissertation Milestone	Date completed or scheduled
Research Performance Evaluation	
Thesis overview	
Final Defense	

2.B. Research Narrative

(briefly describe, in less than 300 words, research highlights from the last year)

2.C. Research Plan

(Briefly describe, in less than 300 words, technical goals you expect to complete by the end of next year. State your main hypothesis, materials, and techniques. List planned papers, conference presentations, etc.)

Appendix C: MSE RPE Committee Checklist and Evaluation Instructions

CANDIDATE NAME: COMMITTEE MEMBER:

RPE DATE:

The following checklist is to be used by all committee members as a tool before and during the RPE. Please circle YES or NO as appropriate for each statement.

1. Did the candidate prepare a written document of not more than 15 pages? YES / NO

2. Did you receive the document at least 10 days prior to the evaluation? YES / NO

Did the candidate demonstrate:

1. a fundamental understanding of research goals of the project, YES / NO

2. a knowledge of background literature related to the project, YES / NO

3. an understanding of the research tools that are used to accomplish project goals, YES / NO

4. a hypothesis for the experiments performed to date and for the immediate future, YES / NO

5. an ability to develop a research plan, YES / NO

6. an ability to produce and analyze their own research results, YES / NO

7. an ability to integrate materials fundamentals that are relevant to the project. YES / NO

The candidate is asked to give an oral presentation of less than 30 minutes related to his/her research project. Following this presentation and the question session, the candidate will be asked to leave the room, and the committee grades the exam as usual (show of hands, 1 through 10, no fives).

1. In the case of a failing grade, the relevant failed characteristics must be identified in the written committee report.

2. In the case of a passing grade, but with one or more NO entries circled above, the committee must discuss the seriousness of the failed characteristic.

After committee discussion, the candidate will receive immediate oral feedback on both the strengths and the weaknesses in all seven areas, as well as any other relevant feedback. The results of the RPE (pass/fail) are to be passed on to the department head immediately following the examination. A written summary of the RPE, including all evaluation sheets, will be provided to the department head within two weeks after the examination.

Appendix D: Thesis Overview Feedback Form

Department of Materials Science & Engineering
Carnegie Mellon University

Thesis Overview Feedback Form

(completed by each dissertation committee member)

Doctoral Candidate: _____

Advisor(s): _____

Dissertation Committee Member: _____

This Feedback form: (1) enables the committee to alert the thesis advisor and Ph.D. candidate of potential problems well before the defense, (2) assists the committee members in recognizing common and diverging opinions on the overview strengths/weaknesses, and (3) serves as a useful record of each committee member's opinions regarding the thesis overview.

1. Is the candidate able to place their research in the context of the background literature and defend how their research represents (will represent) an advancement of the state of knowledge in the field?

2. Has a clear hypothesis (or clear hypotheses) guided the production and analysis of publishable research results?

3. Is the path to reach the stated goals of the thesis clear and has the candidate mastered the skills required to complete the research; questions of feasibility should be largely absent?

4. Are the scope of the research, analysis, and integration deemed appropriate by the committee to form an acceptable Ph.D. dissertation?

[You may continue comments on the back or on another sheet]

Appendix E: Thesis Overview Feedback Form (Advisor)

Carnegie Mellon University

Thesis Overview Feedback Form

(to be completed by the thesis advisor, kept in the student's file, and submitted with the dissertation to each committee member prior to the thesis defense)

Doctoral Candidate: _____

Advisor(s): _____

Committee Members: _____

This Feedback Summary: (1) enables the thesis advisor and Ph.D. candidate to avoid potential problems before the defense, (2) assists the committee members in their final evaluation of the dissertation prior to the thesis defense, and (3) serves as a record of the general recommendations of the committee following the thesis overview

Mandatory changes:

Optional changes:

[You may continue comments on the back or on another sheet]