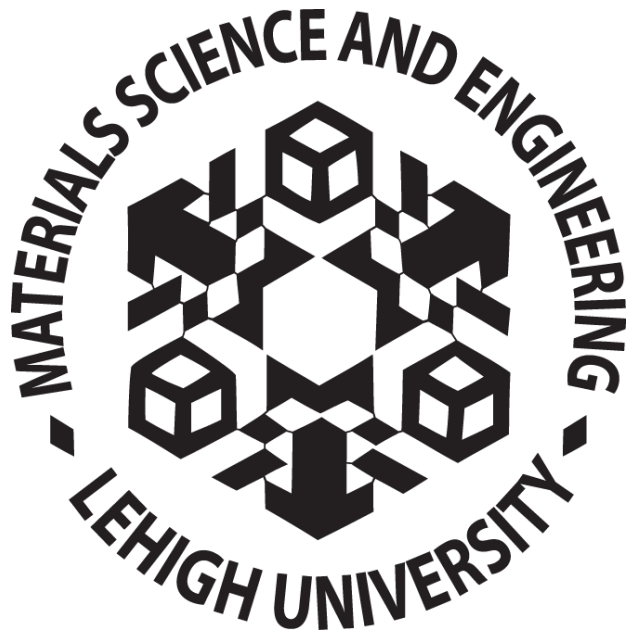




LEHIGH UNIVERSITY.

Materials Science & Engineering Graduate Student Handbook



P. C. Rossin College of
Engineering and Applied Science

(08/02/16)

Welcome from the Chair:

To our graduate students:

This handbook has been prepared for the 2016-2017 academic year. It supplements but does not supersede the College of Engineering and Applied Sciences Graduate Student Handbook. I advise you to refer to the University Catalog and Graduate Student Handbook for complete information, located at http://www.lehigh.edu/engineering/pdf/graduate_student_handbook.pdf.

On behalf of the Department faculty and staff, I welcome you to Lehigh and trust that you will have a successful and rewarding experience during your studies in the Department of Materials Science and Engineering.

*Wojtek Misiolek
Department Chair*

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1.0 PROCEDURES FOR NEW GRADUATE STUDENTS

1.1 Check in and Starting dates

Students are expected to be on campus at least two weeks prior to the start of classes in time for new student orientations, testing and registration. International students must report to the Office of International Students and Scholars (OISS), located in Coxe Hall, immediately upon arrival on campus.

1.2 Required Orientations

We encourage all incoming graduate students to attend all sessions of the University New Student Graduate Orientation (which is held at the start of every academic semester). However, the following sessions **must be attended** in order to be in compliance with University regulations:

- Effective Teaching
- Presentation Skills
- Classroom Management
- Instructional Technology
- Important Policies TA's Need to Know
- Professionalism, Ethics and Integrity
- Lab Safety Training
- MAT Lab Safety Course, Right to Know (Available through CourseSite)
- TOPSS Testing - a test of English proficiency (English as second language students)
- *Office International Students and Scholars Orientation (International Students Only)

Failure to attend the above sessions will result in not being able to enter lab areas nor will you be permitted to serve as a departmental teaching assistant which is a program requirement in the Department of Materials Science and Engineering. Registration must be done online through the Graduate Student Life site at: www.lehigh.edu/~ingrador

1.3 Diagnostic Testing

All incoming graduate students (both MS and Ph.D.) are required to take this placement exam. Its purpose is to determine, prior to selecting the first semester courses, the areas of MS&E in which a student may have deficiency. The exam is given at the Department's sophomore level, MAT 33 course: Engineering Materials and Processes. The diagnostic test can have two outcomes, as determined by the Chair of Graduate Committee in coordination with the student's adviser:

- Pass: The student may move on with graduate course work starting with the Foundation courses.
- Pass w/ deficiency: The student must remove deficiency by taking one or more of the prescribed undergraduate courses before, or concurrently with, registering for the Foundation courses.

1.4 Course Selection and Registration

When a graduate student enters the department, particularly from a discipline other than materials science and engineering, the advisor will carefully review the student's performance in the diagnostic test and previous courses to determine whether there is sufficient background to begin the department's Foundation Courses or whether remedial courses are recommended. Students without a B.S. in materials science and engineering or an equivalent subject, may use up to 6 credits of 200-level MS&E courses to fulfill the total credit requirements. The GPA in such courses must be at least 2.75 and the courses must be approved by the Graduate Coordinator in Materials Science and Engineering prior to the student registering for the courses.

All new graduate students must register, in consultation with their advisors, for their course work during the registration period. Personal identification numbers (PINs) for registration will change every semester and can be obtained from either your adviser or the Graduate Coordinator. To maintain full-time status Graduate Students must register for nine credits a semester or be certified full-time by the Registrar's office. Full-time certification forms can be found in the MSEGRAD tab in CourseSite, picked up in the Graduate Coordinators office, or online at http://www.lehigh.edu/~inengrit/gradforms/pdfs/fulltime_certification_form.pdf.

Current full-time students **must pre-register** each semester during the announced pre-registration period. Failure to pre-register will cost you a personal "late fee" of \$100 by the Registrar. First time students do not have to register within the pre-registration and will not be subject to the fine. This exemption only applies to your first semester as a full-time graduate student at Lehigh.

Materials Science and Engineering Graduate Programs (MS, ME and Ph.D.) have two required core courses and each are four credit hours: (1) MAT 401 Thermodynamics and Kinetics (4 cr.) and (2) MAT 403 Structure and Properties (4 cr.). The first course, MAT 401, covers thermodynamics and kinetics of materials. In addition to the assigned lecturers, several guest lecturers may be invited to present a wide range of topics. The second course, MAT 403, covers structure and properties of materials.

By University rules, a student will not be allowed to continue as a graduate student if he or she accumulates more than four grades below B-. In addition, no credit is counted towards a degree for grades below C for 400-level courses and B- for 300-level courses.

International Students please adhere to the following guidelines when registering for online or courses through distance education:

The official NAFSA: Association of International Educators policy as reported by Lehigh's International Students and Scholars office is as follows:

The 8 C.F.R. § 214.2(f)(6)(i)(G)

(G) For F-1 students enrolled in classes for credit or classroom hours, no more than the equivalent of one class or three credits per session, term, semester, trimester, or quarter may be counted if taken online or through distance education in a course that does not require the student's physical attendance for classes, examination or other purposes integral to completion of the class. An online or distance education course is a course that is offered principally through the use of television, audio, or computer transmission including open broadcast, closed circuit, cable, microwave, or satellite, audio conferencing, or computer conferencing. If the F-1 student's course of study is in a language study program, no online or distance education classes may be

considered to count toward classroom hours or credit.

Also - please note that when a student is in their last semester and only requires one course, it cannot be a distance ed course. Below taken from NAFSA Manual:

"The regulations are silent on the question of whether a distance education course can satisfy the full course of study requirement if it is the only course taken in the final semester of study. However, in the March 2008 SEVIS Liaison Call, SEVP told NAFSA:

If a student needs only one course to finish his or her program of study, it cannot be taken through online/distance education. There must be a physical presence requirement for the course. If a student remains in the United States without reporting to any class, it becomes a security issue and cannot be allowed."

1.5 Desk Assignments, Keys and Coffee Club

Desk assignments, departmental mailboxes and keys must be obtained through the Graduate Coordinator in the Department of Materials Science and Engineering. Upon leaving, please see the Graduate Coordinator for a check out form. This form must be taken to Facilities Services, signed off and then returned to the Department.

The department also has a coffee club for students to join. The cost for purchasing coffee through the department is \$5.00 per month. To foster interaction between students and faculty, faculty and students meet weekly to discuss current topics in the Whitaker Student Lounge, room 349.

1.6 Health Insurance

University policy requires ALL resident graduate students to have health insurance. For 2015-2016, the annual premium for **student only** coverage will be \$1,875.00. To help eligible students (see criteria below) afford individual coverage, the University will provide a subsidy of \$932.50 for the 2015-2016 year. The out-of-pocket cost for their individual coverage will be \$942.50. Eligible students will receive a subsidy payment of \$466.25, minus the appropriate taxes for each semester during which they qualify. The subsidy will be paid at the end of each semester (with the December 15th and May 13th paychecks). **NOTE: If your paychecks stop before these dates, you will not be able to receive the subsidy.** The subsidy program is an integral part of the University's commitment to providing our graduate students with a quality insurance program. Due to the drastic changes that have been occurring in the insurance industry and in an attempt to provide affordable insurance coverage to our graduate students, the University no longer offers coverage for dependents. In order to help those students that require dependent coverage explore the dependent coverage available, University Health Plans, the University's insurance broker, will maintain a website that will list insurance companies that may provide coverage for dependents. **Criteria for Sickness/Injury Insurance Subsidy Program** The subsidy program is offered to students who meet all criteria listed below on the payment subsidy date:

1. Full-time or certified full-time graduate student
2. Receiving assistantship or fellowship payments through the university payroll system
3. Have paid their Lehigh injury and sickness insurance premium in full or are signed up for payroll deduction of premiums.

Enroll in the insurance program by submitting to the Bursar (1) a completed application for the insurance plan, (enrollment applications can also be found at www.universityhealthplans.com then click on the Lehigh University link), AND (2) payment, (check, cash, MasterCard, VISA, AMEX, proof of an approved pending loan, or payroll deduction form), before September 9, 2015, (annual 2015/2016 coverage or coverage only for fall 2015 semester), and February 5, 2016 (coverage only for spring 2016 semester). Students who are eligible to enroll for the fall semester and choose not to enroll are eligible to enroll for the spring semester only if the student has a "qualifying event" as described in the Student Health Insurance Brochure.

All relevant forms are available at the Bursar's Office. Enrollment applications can also be found at www.universityhealthplans.com then click on the Lehigh University link. Payroll deduction forms may be found on the Lehigh University Controller's Office website www.lehigh.edu/~inctr/forms_payroll.shtml under Payroll forms.

1.7 Safety Requirements

All incoming students must view and pass MAT Lab Safety course available through Course Site and are also required to attend the University Orientation sessions held at the start of the term when beginning your program.

If a student fails MAT Lab Safety quiz by the third attempt the graduate student must see the Graduate Coordinator in Material Science and Engineering. If necessary a physical meeting with the Environmental Health and Safety Office might be required to go over deficiencies. Failure to pass the MAT Lab Safety Course may result in termination of graduate work in the Department.

Compliance with all safety regulations of the University and of specific laboratories is absolutely required of every student. Non-compliance could lead to expulsion from laboratory facilities. Handbooks on laboratory procedures, waste disposal, hazardous material, etc., are handed out at orientation. Each student is responsible for safety in the laboratory and should report all unsafe practices to his/her advisor, the laboratory Safety Officer listed outside the laboratory door, and Department Chair.

Eye Protection: The State of Pennsylvania requires that eye protection be worn in every laboratory. Safety glasses are required in every laboratory and side shields may be required in certain labs where chemicals are in use. Check the specific lab requirements.

English Speaking: All students **MUST Speak English** in the laboratory environment for safety reasons. Any student violating this requirement will be given a warning and a notice will be sent to his/her advisor. A second offense may result in expulsion from the laboratory and a meeting among the Safety Officer, student, and laboratory supervisor will be held to correct the problem.

1.8 Seminars

An essential part of graduate education is to effectively communicate the methods and results of new research. For this reason, all full-time and on-campus part-time graduate students in the Department are required to present an overview of their current research in the form of a Graduate Student Seminar once every two years (or once per graduate degree if the time per degree is less than two years). Part-time graduate students may present one seminar for each graduate degree. Each student should notify the Graduate Coordinator one semester before they plan on completing their degree to ensure that they can meet this requirement.

Each seminar will be approximately 20 minutes in duration. The level should be appropriate for a diverse audience of graduate students and faculty. It is not necessary to present fully completed work; the intention is to clearly describe to the audience the project plan, the techniques used, and any conclusions that have been reached at the time of the presentation. This will foster open discussion that can aid all students in generating new ideas as well as in dealing with obstacles in their research.

Another essential part of graduate education is to become aware of advances in areas of research outside of one's specialty. All graduate students MUST therefore attend Graduate Student Seminars and Departmental Seminars. Sign-in sheets will be available at all seminars. An overall rate of 80% attendance each semester of full-time registration must be demonstrated in order to receive a graduate degree. If it is not possible to attend 80% of the seminars offered within the Materials Science and Engineering department, a Petition to apply outside seminars offered by other departments must be completed, signed off by your advisor and submitted to the Graduate Coordinator in Material Science and Engineering for the waiver to be allowed.

1.9 Graduate Student Representative to MSE Faculty Meetings

In an effort to quickly address graduate student concerns and to obtain a graduate student perspective on departmental issues, two graduate student representatives are appointed to attend the monthly MSE Faculty meetings. Each Graduate Student Representative will serve up to a two-year term upon appointment by the MSE Graduate Student Coordinator. Generally, terms will begin in the Fall semester of a given academic year and cannot be extended beyond a total of one term (two years). To ensure a diversity of perspectives, one graduate student should be appointed from the available pool of domestic graduate students and another from the available pool of international graduate students. Important information from the monthly MSE Faculty meetings should be relayed to MSE graduate students as deemed necessary by the Graduate Student Representatives.

1.10 Department Representative to Graduate Student Senate

Every year, one graduate student is appointed to serve as the MSE Unit Representative to the Lehigh University Graduate Student Senate. The one-year appointment, beginning in the Fall semester of a given academic year, is overseen by the MSE Graduate Student Coordinator and may be extended for one extra term (for a total of two years). Due to the close relationship between the MSE and PSE (Polymer Science & Engineering) programs, a second MSE graduate student may serve as the PSE Unit Representative to the Lehigh University Graduate Student Senate. Important information from the biweekly Lehigh University Graduate Student Senate meetings should be relayed to the MSE Graduate Coordinator, MSE Faculty and the MSE graduate students as deemed necessary by the MSE and PSE Unit Representatives.

1.11 Graduate Student Service to the Department

Throughout the year there are many events in which a graduate student can provide service and assistance to the department. These events include but are not limited to: Family Weekend, Engr 5 Tours, Candidates Day Tours, Materials and Teachers Camps, Nano Days, Governor's School, and ad hoc tours of our facilities.

Each student is required to volunteer for at least five (5) hours a year. These opportunities not only play an important part in the success of these events, but also afford the student many

opportunities to interact with Faculty, Staff, other students, prospective new students, external visitors. It also plays an integral part in Professional Development, as it entails learning to interrelate with the community at large, and can be used to enhance your resume.

2.0 MS & ME ACADEMIC REQUIREMENTS

2.1 MS Course Requirements:

Masters (MS) in Materials Science and Engineering: 30 credit hours total

Courses	Credits
MAT 401: Thermodynamics and Kinetics Required Core Course	4 credits
MAT 403: Structure/Property Relations Required Core Course	4 credits
MAT 490: Thesis credits Required	3-6 credits to be determined by Adviser (Minimum of 3; maximum of 6 credits cannot be exceeded - ENGR 490 MOC is available if needed)
400 level credit hours required by the College of Engineering and Applied Sciences	18 credits of which 15 credits must be in Materials Science and Engineering (MAT 4XX) (MAT 401, MAT 403 and MAT 490 apply toward the 18 credits). Essentially 18 credits 400 level, 12 credits 300 level.
Free Electives inside or outside the department (can be 300 level or 400 level)	Up to 4 credits.

No credit is given for grades below a C-. A student will be ineligible for a Masters Degree if the student accumulates more than four grades below B-. A non-thesis M.S. degree option is available to a candidate who is working in industry, and for whom a company provides full tuition. Such students should replace the (6) thesis credits (MAT 490) by other 400-level courses in the Department. A GPA of at least 2.75 is required to qualify for the master's degree.

2.2 ME Course Requirements:

In the Masters in Engineering (ME) degree program the above requirement of Master's thesis is fulfilled by MAT 460, Engineering Project, maximum 3 credits. A comprehensive engineering report is required in this course. A publishable paper is desirable but not required.

Masters (ME) in Materials Science and Engineering: 30 credit hours total

Courses	Credits
MAT 401: Thermodynamics and Kinetics Required Core Course	4 credits
MAT 403: Structure/Property Relations Required Core Course	4 credits
MAT 460: Engineering Project Optional	1-3 credits (maximum of 3 credits total cannot be exceeded)
400 level credit hours required by the College of Engineering and Applied Sciences	18 credits of which 15 credits must be in Materials Science and Engineering (MAT 401, MAT 403 and MAT 460 apply toward the 18 credits). Essentially 18 credits 400 level, 12 credits 300 level.
Free Electives inside or outside the department (can be 300 level or 400 level)	Up to 4 credits

Normal full-time duration for an M.S. or M.E. is 1.5 to 2 years; however, all work must be completed within a maximum of 3 years for full-time students and 6 years for part-time students. A GPA of at least 2.75 is required to qualify for the masters degree.

2.3 Graduation Requirements for MS & ME:

In the last semester students need to complete the following:

- Make sure you have satisfied all of the seminar requirements outlined in section 1.8
- Submit the following paperwork to the Graduate Coordinator in the Materials Science and Engineering Department or online when specified:

Forms	Due Date	Special Notes
Application for Degree - online	January Graduation: 10/1, May Graduation 2/27, September Graduation 7/1	Both MS and ME Students
Program for Masters Degree http://tinyurl.com/nvfesnr	Before last term ends	Both MS and ME Students *all grades must be received by the Registrar's office by the end of the semester*
Graduate Student Check-Out Form	Submission required before leaving Lehigh.	Both MS and ME Students Completed form must be submitted to Graduate Coordinator in Materials Science and Engr.
Interdepartmental Clearance	Before last term ends	Both MS and ME Students

Sheet		
Submission of Thesis Electronically: http://www.etsadmin.com/lehigh	Must be done by designated deadlines set by the Registrar's Office	MS students only
Original signature sheet signed by ALL committee members	Must be done by designated deadlines set by the Registrar's Office	MS Students only, turn directly into the Registrar's Office
Microfilming receipt from the Bursars Office	Must be done by designated deadlines set by the Registrar's office	MS Students only, turn directly into the Registrar's Office
Printed copy of completed thesis to Graduate Coordinator in Materials Science and Engr.	Submission required before leaving Lehigh	MS students only
Seminars	All seminar requirements must be completed as outlined in section 1.8 of this handbook	MS & MEng full-time students only
Graduate Student Check-Out Form	Submission required before leaving Lehigh. * Allow a minimum of FIVE (5) DAYS PRIOR TO LEAVING for Environmental Health and Safety to secure clearance and sign off on the form.	Both MS and ME Students Completed form must be submitted to Graduate Coordinator in Materials Science and Engr.

***Guidelines for the thesis and dissertation can be obtained through the Graduate Coordinator in Materials Science and Engineering, through CourseSite under MSEGRAD, or at <http://www.lehigh.edu/~inengrit/gradforms/gradcompletion.html> ***

3.0 DOCTORAL ACADEMIC REQUIREMENTS

3.1 Ph.D Course Requirements:

- Students must complete 72 credit hours beyond the B.S. degree or 48 credits if they come with a M.S. degree in a relevant field from another recognized institute.
- 3 University 400 level courses must be taken in addition to the 2 Foundation (Core) courses, MAT 401 & 403.
- Students are expected to take additional courses beyond these minimum requirements. The specific course work is to be determined by the Adviser and the Ph.D. Committee and should reflect both breadth and depth.

3.2 TA Requirement

Each Ph.D. candidate must serve as a Teaching Assistant for at least one semester in a technical course within the department. This includes any technical course taught by a faculty member in the Materials Science Department. This is a Departmental requirement for graduation. A student for whom English is not their first language needs to score greater than ($>$) 3.5 on the TOPSS test in order to be a TA (see below).

English Language Proficiency

A score of 3.5 or higher on the TOPPS test is a graduation requirement of this department for students whom English is a second language. Information on the TOPPS test can be found at: <https://global.lehigh.edu/esl/topps>. If the student receives a score below 3.5, then the student must continue with ESL courses and/or seek tutoring (to be determined by ESL Office) until a passing score (≥ 3.5) is obtained. Failure to pass the TOPSS test (score ≥ 3.5) within the two-year time limit may result in denial of degree, loss of support and/or ineligibility for funding. The Department will cover the TOPPS testing fee for the first try (must be taken by the end of the first semester on campus). Graduate students with scores below 3.5 must personally pay for all re-examinations, ESL courses and tutoring until a score of ≥ 3.5 is obtained.

3.3 Qualifying Procedure

The qualifying exam comprises both written and oral components and is usually taken after one and a half to two years of graduate study. A GPA of at least 3.0 after the completion of at least 11 credit hours of MAT 4XX courses (must include MAT 401 and MAT 403) is required before the qualifying exam can be attempted. Students will have approximately three weeks to complete the written paper and an oral examination will follow one to two weeks after the paper is submitted. The qualifying exams are held twice a year, in August and January.

The Qualifying Exam will consist of two parts.

Part 1. (written)

The written exam or “white paper” is based on a proposed research topic that a student chooses in consultation with his/her adviser. In practice, a student will select at least two to three such topics and submit the choices to the Graduate Committee for approval. The topics can be related to one’s research thrust, but not simply identical to the thesis topic.

The Committee will select one topic, and the student will then have approximately three weeks to prepare a “white paper” based on the topic. More specifically, please note that an effective white paper is relatively short (no more than five pages, single-spaced, excluding references and at least 10 pt. font), states the relevance of the proposed research and its aims, provides a concise introduction to the research area that puts the project in context, describes how the research will be done (including equipment usage) and contains a bibliography listing important references. The white paper should be written as if it is to be submitted to a governmental agency with the goal of persuading that agency to fund the research based on its merits. No budget is required for this document.

Part II. (oral)

Part II of the Qualifying Exam will be an oral exam. The oral exam follows approximately one to two weeks after the written exam and tests both the materials in the white paper and the student's grasp of the concepts at the foundation of materials science and engineering. This exam should not be taken lightly. Students need to be sufficiently prepared for this examination. During this exam, the student will make a short (approximately 5 minute) presentation of the topic covered in the white paper. The exam committee will then question the student on the content of the white paper and on the subject matter that constitutes the core of the materials curriculum (e.g. thermodynamics, kinetics, structure and properties of materials). At the conclusion of the written and oral exams, an evaluation of the student's performance will be given in the form of a letter grade.

Grading of the Qualifying Exam

To determine whether a student will become a Ph.D. candidate, the department as a whole will consider the student's grades in Core graduate courses, his/her performance on the qualifying exam and his/her progress in directed research. This final assessment will be given as either "PASS" or "FAIL" and communicated directly to the student. In the event of a "FAIL", the student will be informed of any deficiencies and given a recommended course of action. In some cases a provisional "PASS" may be assigned with passing contingent on some remedial action. A student may attempt the qualifying exam no more than twice. Students need to complete and submit the Report on the Ph.D. Qualifying Exam form to the Graduate Coordinator in Materials Science and Engineering.

3.4 Doctoral Committee

The doctoral committee is a special committee formed to guide the student through the doctoral program. The committee is responsible for assisting the student in formulating a course of study, satisfying specific departmental requirements, submitting a suitable dissertation proposal, overseeing progress in research, and evaluating the completed dissertation.

The process of appointing doctoral committee members varies across departments; however, the minimum number of committee members is four. Of these, three, including the committee chair, are to be voting Lehigh faculty members. With the written approval of the dean of the college, one of the three aforementioned faculty members, each of whom must have a doctoral degree, may be drawn from categories that include departmentally approved adjunct, professors of practice, university lecturers, and courtesy faculty appointees. This latter member may not serve as the committee chair. The fourth required member must be from outside the student's department (or outside the student's program if there is only one department in the college). Committees may include additional members who possess the requisite expertise and experience. Committee members must be approved by the University's Graduate and Research Committee; such approval may be delegated to the department or program sponsoring the degree.

3.5 Dissertation Proposal

Written Dissertation Proposal: The purpose of the dissertation proposal is to outline the research that will fulfill the requirements for the Ph.D. dissertation. It is to be written following NSF's guidelines for a Single Investigator Proposal. The proposal should contain at least the following: (1) review of the pertinent literature, (2) preliminary research conducted on the topic, (3) detailed outline of the proposed investigation. *Document length is limited to 15 pages single*

line spacing. The presentation should be 30-45 minutes long and you should allow 2-3 hours for your proposal.

This proposal is to be submitted to the prospective student's Doctoral Dissertation Committee **no longer than one year after passing the Ph.D. Qualifying Exam.** Note that students must give their Doctoral Dissertation Committee at least one week to review their proposal prior to defending the proposal.

Coursework Summary. The student should list the following information with the dissertation proposal: (a) degrees earned including the names of schools and departments and the dates awarded, (b) all Lehigh courses completed showing course titles, credit hours, and grades, (c) date of passing the Qualifying Examination, and (d) additional course work proposed.

3.6 Dissertation Proposal Defense/General Examination

The purpose of the dissertation proposal defense/general examination is to demonstrate the candidate's expertise, knowledge and understanding in the Specialty Area related to the student's research work. The student begins defending his/her dissertation proposal before the doctoral committee, and then it may expand to cover the wider range of the specialty area from one of the following: Ceramics, Structural Characterization, Metals, Electronic Materials or Polymers. Questions during the proposal may be from any area of MS&E, but will be in greater depth in the Specialty Area in order to certify the technical qualifications of the student.

If the student fails the proposal, the student may be permitted to propose one additional time no earlier than three months or later than six months after the first proposal. If the results of the second proposal are also unsatisfactory, no further examination will be given, and the candidate will not be permitted to continue towards the Ph.D. Since the Proposal Defense is synonymous with the General Exam in the MSE department, after the proposal is completed the student will need to complete and submit the Report on General Doctoral Exam form to the Graduate Coordinator in Materials Science and Engineering.

3.7 Admission to Candidacy

Once a student has passed the proposal/general exam process the Admission to Candidacy and Report on General Doctoral Examination forms must be completed. Forms can be found in CourseSite under the MSEGRAD course or can be obtained by visiting the Graduate Coordinator in Materials Science and Engineering.

The Admission to Candidacy paperwork must be received two weeks prior to the start of the Fall or Spring terms to be able to drop down to one credit if you have met the seventy two credit hours needed for a Ph.D. without a prior Masters or have met the forty credit hours needed for the Ph.D. with a prior Masters degree. Please make sure the following is submitted to the Graduate Coordinator in the Materials Science and Engineering department:

- a. Application for Admission to Doctoral Candidacy form.
- b. Written Proposal signed by the Committee members.
- c. Report on General Doctoral Exam form signed by committee members (date will always be the same date as the proposal.)
- d. Copy of students course work (can be obtained from the Graduate Coordinator)

Upon receipt of the items listed above the Graduate Coordinator in Materials Science and Engineering will submit everything to the Dean's Office in the College of Engineering and Applied Sciences for approval. Notification of Admission to Doctoral Candidacy will come from the office of the Dean of the College of Engineering and Applied Science. Please refrain from submitting your candidacy paperwork at the start of the semesters (first two weeks) as this is a very busy time for the Dean's office.

3.8 Dissertation and Defense

Completion of the Doctoral Dissertation shall be scheduled to comply with the following requirements:

- a. **Dissertation:** This document shall be prepared according to the instructions of the Graduate School and must have the format given in "Guidelines for the Preparation of Master's Thesis and Doctoral Dissertation". These guidelines can be found in Course Site under the MSEGRAD course or can be obtained from the Graduate Coordinator in Materials Science and Engineering.
- b. **Rough Draft:** To satisfy graduation requirements, a draft of the dissertation, bearing the signature of the dissertation advisor, must be presented to the office of the Dean of the College of Engineering and Applied Science before the submittal deadline given in the academic calendar.
- c. **Defense:** After the draft of the dissertation has been approved by the Dean's Office, the candidate distributes copies of the draft dissertation to the members of the Doctoral Committee. The candidate then arranges a suitable date and location for the defense of the dissertation, allowing time for the Doctoral Committee to examine the draft. The date of the defense shall be posted on the departmental bulletin boards by the candidate. *At least two weeks prior to the defense, a copy of the dissertation shall be placed in the department office for examination.* The presentation portion of the dissertation defense is open to the public.
- d. **Required Final Copies:** *After the defense, but no later than two weeks before the degree is to be conferred, the candidate shall deposit with the Department Chair one **copy of the dissertation** including one title page showing original signatures of approval by the Doctoral Committee. Final approval of the dissertation usually takes place at a scheduled exit interview with the Department Chair. Submission of the final dissertation must be done online at <http://www.etdadmin.com/lehigh> and must be done in accordance with the set deadlines by the University. **A copy of the dissertation must be submitted** to the Department Graduate Coordinator for the Materials Science and Engineering in order to receive your degree.*

Please see the table below for deadlines and requirements.

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1.	Concentrated Learning requirement: either two semesters of consecutive full-time graduate study (9 credits per semester, spring and fall) or 18 credit hours of graduate study within a fifteen-month period must be completed. Individual departments may impose additional requirements. Candidates should check with their advisors to be certain that they have satisfied their residency requirements.
2.	Admission to candidacy: A. Qualifying Exam B. approval of composition of special committee (at least 4 members, with one being from outside the department or program). C. application for candidacy signed by members of special committee. one original copy of the proposal
3.	TOPSS Test (formerly Speak test) passed (International Students Only). > 3.5 required
4.	Proposal must be passed 7 months prior to graduation.
5.	Payment and completion of minimum tuition fee equivalent to 72 credit hours beyond the Baccalaureate or 48 credit hours beyond the Master's degree (obtained from another university or in a different field at Lehigh).
6.	Application for degree. Apply on or before date specified in catalog (February 28 th for May degree, July 1 st for September degree or October 1 st for January degree) at the Registrar's Office. Re-application is required if students misses expected graduation date.
7.	Dissertation first draft must be signed by the advisor and another committee member. Submit to the Office of Graduate Studies & Research by the relevant deadline. Refer to the University calendar for the exact date.
8.	Final dissertation defense examination. Notify the Office of Graduate Studies & Research of this date in advance. You may do this by submitting a copy of your defense announcement. The Materials Science and Engineering Graduate Coordinator must be notified at least one week prior to the schedule defense.
9.	Submission of final dissertation using the online submission system. Submission of Bursar's receipt for the fee, and other relevant paperwork to the Office of Graduate Studies & Research. Check final submission date in the University calendar.
10.	Interdepartmental clearance form is secured through the Office of Graduate Studies & Research or the Registrar's Office, and returned to the Registrar's Office after obtaining the appropriate signatures. Also, check with the Bursar's Office, Bookstore, Library and Parking Services for any outstanding balances. Be sure to clear any balances due to the university to ensure receipt of your diploma at graduation. Check out forms must be submitted to the Graduate Coordinator in the Materials Science and Engineering Department.
11.	Make sure all of the seminar requirements have been completed as outlined in section 1.8 of this handbook

3.9 Draft of Publishable Paper/Residency Requirements/Time Limits

A draft of an article for publication, based on the dissertation, shall be submitted to and accepted by the advisor prior to approval of the dissertation by the Department Chair. All part-time and full-time graduate students are required to satisfy the University Residency Requirements as listed in the Graduate Student Handbook or University Catalog. A candidate for the doctor of philosophy degree ordinarily is expected to devote at least three academic years to graduate work. In no case is the degree awarded to someone who has spent less than two full academic years of graduate work. All post-baccalaureate work toward the doctorate must be completed within ten years. A student beginning doctoral coursework after an elapsed period of at least one semester after the master's degree has been conferred is granted seven years in which to complete the doctoral program.

4.0 SPECIAL DEPARTMENTAL REGULATIONS

4.1 Grievance Procedures

If a student has a complaint about a faculty member, course, or other departmental matter for which redress has not been obtained, the complaint should be brought to the attention of the Graduate Committee. A written response will be given to the student. If the student is not satisfied, petition then goes to a select committee of the faculty for decision.

4.2 Petition Process

The right of petition is open to all students at all times. The Graduate Student Program Petition form must be prepared completely and signed by the student's advisor, department faculty graduate coordinator, department chairperson, and associate dean of graduate studies. The form is then submitted to the Registrar for final action. Following is a **partial** list of situations that require approval through a graduate petition:

- Change of status from an associate (or non-degree) to a regular graduate student
- Readmission as a graduate student following an absence of 1 year or more
- Removal of an incomplete (N) grade after one calendar year has elapsed
- Changing members of the doctoral committee
- Extension of time to complete master's or doctoral degree requirements (see the P.C. Rossin College of Engineering and Applied Sciences Handbook, section 4.3.1 Time and Registration Requirements: Masters, p. 25-27; Doctorate, p. 27-28. The link is http://www.lehigh.edu/engineering/pdf/graduate_student_handbook.pdf)

A petition is a request for a change or exception to be made to University policy and procedure, and therefore is evaluated on an individual basis.

4.3 Transfer Credit Policy

A maximum of up to nine credits taken at the graduate level elsewhere may be transferred from an accredited graduate college or graduate university to a Lehigh University Engineering Master's Program. All courses must be assigned a grade of "B" or better to be eligible, and have not been used toward any prior degree. The credits must be completed within four years of first enrollment into a Lehigh graduate program. A transfer credit approval form must be submitted to the Registrar along with course descriptions, an official transcript, and the recommendation of the departmental chairperson. Guidelines associated with transferring credits are listed on the Transfer Credit form. For transfer credit policy pertaining to those students who are undergraduates of Lehigh University please see page 4 of the P.C. Rossin College of Engineering and Applied Sciences Handbook, section 1.1.5

4.4 Telephones

Telephones are available in most laboratories and offices for academic or business use. Local personal calls are permitted provided they do not interfere with business use. Long distance calls for business purposes can be completed only with the use of an appropriate research account (4) digit code number, which may be obtained from the student's Advisor.

4.5 Computers and Software

The departmental computing facilities exist to provide the faculty, staff, and students of the department with computers, software, and associated equipment needed for course work and research. In order to foster an efficient and productive computing environment, it is incumbent upon all users to adhere to some basic guidelines that are listed below. Passwords shall be provided only to users who agree to:

1. Use the computing facilities with care in order to avoid damaging hardware and software.
2. Use only those programs for which the appropriate licenses have been obtained. You must not copy licensed software in an attempt to avoid purchasing a license.
3. Respect the rights and property of other users. In particular, a user's files and password belong to him/her alone and should not be copied or used by others.

Note: Faculty and graduate students are not permitted to use support staff computers or printers.

4.6 Travel Policy

For information on the following please go to: www.lehigh.edu/~inubs/parking/index.shtml

Auto Transportation - Authorized Drivers

University Vehicles

Vehicle Rentals

Auto Insurance

