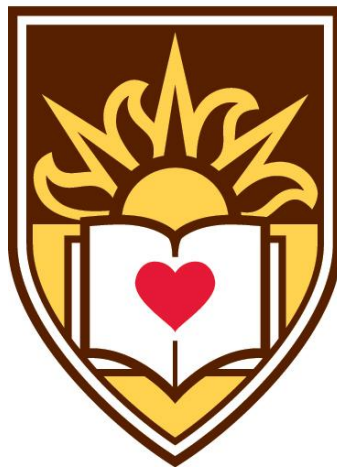


Lehigh University

**Department of
Mechanical Engineering & Mechanics**

Graduate Program Guidelines



Effective for students admitted to graduate studies starting
Summer 2025 and later.

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2 PREFACE

2.1 CONTACTS

Graduate students in the department of Mechanical Engineering & Mechanics may seek assistance from:

Department Chair – Prof. Arindam Banerjee (arb612)

Director of Graduate Studies – Prof. Hannah Dailey (hlr3)

Graduate Coordinator – Ms. Ali Marsteller (alm513)

2.2 EXTERNAL REFERENCES

The [Rules & Procedures](#) of the Faculty of Lehigh University (R&P) can be found online. References to R&P in this handbook refer to the version approved by the University Faculty Senate in September, 2023. All rules and procedures defined in R&P are in force, regardless of whether they are repeated in this handbook.

The P.C. Rossin College of Engineering & Applied Science (RCEAS) [Graduate Student Handbook](#) can be found online.

Future changes to R&P or the RCEAS Graduate Student Handbook may supersede the requirements referenced in this document.

Complete [Thesis and Dissertation Guidelines](#) including formatting instructions can be found online.

Step-by-step procedures for [RCEAS graduate degree completion](#) can be found online.

Links to RCEAS forms and other [graduate student resources](#) can be found online.

2.3 ACRONYMS

MEM	Department of Mechanical Engineering & Mechanics
ME	Mechanical Engineering (refers to degrees awarded from MEM)
MS	Master of Science
PhD	Doctor of Philosophy
RCEAS	P.C. Rossin College of Engineering & Applied Science
R&P	Rules & Procedures of the Faculty of Lehigh University

2.4 DEFINITIONS

2.4.1 Voting and Non-Voting Faculty Members

The voting faculty members of the faculty are those with the rank of assistant professor, associate professor, or professor. Instructors with full-time academic appointments in teaching or research are also voting members of the faculty. Lecturers, part-time faculty, professors of practice, professors emeriti, and visiting members of the instructional or research staff are not voting members of the Lehigh faculty. (R&P §1.1.2)

2.4.2 Semesters

Unless otherwise specified, the word *semester* means the fall or spring regular academic semesters. Summer and winter terms are not counted as semesters of graduate study for the purposes of meeting timeline requirements for graduate degrees in Mechanical Engineering & Mechanics.

3 ACADEMIC STANDARDS

3.1 GRADING PROCEDURES

3.1.1 Course Grades

Course letter grades and their weightings are as follows: A (4.0), A- (3.7), B+ (3.3), B (3.0), B- (2.7), C+ (2.3), C (2.0), C- (1.7), D+ (1.3), D (1.0), D- (0.7), F (0).

The University minimum standards for graduate course grades (R&P §3.22.1) are as follows. No grade below C- may be credited toward a graduate degree. No student who receives more than four grades below B- in courses numbered 200 or higher is allowed to continue registration as a graduate student. Individual degree programs may have higher standards.

Pass-fail registration is not permitted for graduate students.

Letter grades are not reported for dissertation registration.

Audit credits may not be used to satisfy any graduate degree requirements.

3.1.2 Course Withdrawals

A withdrawal from a course within the first ten days of classes (three days for summer sessions) is not recorded on the student's record.

A student who withdraws from a course after the tenth day, but not after the eleventh week of instruction, receives a grade of W.

For RCEAS graduate students, no course may be dropped after the eleventh week of classes.

A student may withdraw from the University by dropping all courses during a given semester. Refer to the RCEAS Graduate Student Handbook for procedures related to University withdrawal.

3.1.3 Incomplete Course Grades

An incomplete grade (N or SP) may be used at the instructor's discretion to indicate that one or more course requirements have not been met. Refer to R&P §3.27.2 for definitions and procedures pertaining to incomplete grades.

Absent from final examination grades (X and Z) are used if a required final exam has not been taken. Refer to R&P §3.27.3 for procedures pertaining to makeup exams and removal of X and Z grades.

3.1.4 Repeating a Course

A student may repeat a course only twice for a total of three attempts. Withdrawal from a course (W grade) counts as an attempt.

Graduate students enrolled in RCEAS degree programs are subject to a stricter course repeating policy than the procedure defined at the University level (R&P §3.9). For RCEAS graduate students, each time a repeated course is taken it is included in the academic record, as is the final grade assigned, and all grades appear on the official student academic transcript. All final course grades are included in the calculation of the student's cumulative grade point average. Course credits from a repeated course count only once towards satisfying graduation credit requirements.

3.1.5 Degree Registration Requirement

A student must be registered in the semester in which the degree is conferred. If a student is not registered for a course, they must register for maintenance of candidacy. Candidates for September degrees do not need to be enrolled in the summer preceding the degree if they were enrolled in both the fall and spring semesters of the previous academic year.

4 MASTER'S DEGREE REQUIREMENTS

4.1 GENERAL REQUIREMENTS

All Master's degrees granted by Lehigh University must satisfy the common University requirements, defined in R&P §3.22 *Requirements for Master's Degree*. These rules reflect the minimum requirements at the University level. Additional college and department rules are also enforced.

4.1.1 Course Work Requirements

The University requirements specify that a Master's degree must include:

- At least two full semesters of advanced work
- At least 30 credits
- At least 24 credits of 300- and 400-level courses
- At least 18 credits of 400-level courses
- At least 18 credits in the major field¹
- At least 15 credits of 400-level courses in the major field

Master's degrees may include:

- Courses at the 200-level and higher outside the major field (no more than two courses)
- Courses at the 300-level and higher in the major field
- Up to six credits of thesis

Graduate students enrolled in 200-level and 300-level courses may be assigned additional coursework at the discretion of the instructor. Advisor approval is required to register for a 200-level course.

4.1.2 Additional Grade Requirements for RCEAS Master's Students

Master's students enrolled in RCEAS degree programs are subject to a stricter grade requirement policy than the procedure defined at the University level (R&P §3.22.1). For RCEAS students, the Master's degree is not granted unless the candidate has earned grades of B- or better in at least 18 credits **AND in all 300-level courses in the major field**. No grades less than C- can be credited toward the degree.

4.1.3 Time Requirements

A candidate for a Master's degree must complete a minimum of two full semesters of advanced work. All work on a program for a Master's degree must be completed within six years. The time to degree begins when the student first registers for courses as a graduate student.

4.1.4 Admission to Candidacy

Admission to candidacy for the Master's degree requires approval of the [Program for Master's Degree form](#). This form lists the courses proposed to satisfy the degree requirements for the student's chosen program. The Program for Master's Degree form is reviewed by the Graduate Coordinator, the Director of Graduate Studies, and the RCEAS Dean's Office, and approved by electronic signature.

MEM students are required to submit the Program for Master's Degree no later than the tenth day of classes in the semester after completing 15 credit hours of graduate courses.

Approval of the Program for Master's degree form signifies that the student has been formally admitted to candidacy for the Master's degree.

Any changes to the degree program after approval of the Program for Master's Degree form require resubmission and reapproval of a revised Program for Master's Degree form.

¹ For MEM students, courses in the major field have an ME or MECH prefix.

4.1.5 Thesis Requirements

A written thesis is optional. When the Program for Master's Degree includes a thesis, the thesis document must be submitted, approved, archived, and made publicly available. Refer to R&P §3.22.1-10 for complete University rules regarding publication of theses.

The thesis document must be prepared and formatted according to the rules outlined in the RCEAS [Thesis and Dissertation Guidelines](#).

In MEM, students completing a thesis must register for six credits of ME 490 (Thesis). No comprehensive examination is required for Master's thesis candidates in MEM. Students who have completed six credits of ME 490 (Thesis) may not use ME 460 (Project) credits for fulfillment of Master's degree requirements.

4.1.6 Transfer Credits

Up to nine credits taken at another institution may be approved for transfer to a Lehigh Master's degree program of 36 credits or less. To be eligible for credit toward a Lehigh Master's degree program, all transferred courses must:

- Have been taken at the graduate level,
- Have a grade of B or better,
- Not have been used toward any prior degree,
- Have been taken within four years prior to enrollment into a Lehigh graduate program, and
- Have been taken from an accredited institution (if in the US).

Refer to R&P §3.22.2 for complete University rules regarding transfer credits and the petition process for requesting transfer credit approval.

Transfer credit petitions are reviewed and approved by the University Registrar. To request review of transfer credit eligibility, the student must submit a [Transfer Credit Approval form](#) along with course descriptions, an official transcript, and the recommendation of the department. In MEM, transfer credit petitions are reviewed first by the Director of Graduate Studies, who makes the department recommendation.

A petition to receive transfer credit for courses with a prefix other than ME or MECH requires approval from both MEM and the Lehigh department offering the course for which transfer credit is requested.

4.2 MASTER OF SCIENCE (MS) IN MECHANICAL ENGINEERING

4.2.1 Required Coursework

The Master of Science degree in Mechanical Engineering requires a total of 30 credits with a minimum of 18 credits in Mechanical Engineering & Mechanics (MEM). The courses taken for the MS degree must satisfy both the core course requirements and the University course distribution requirements. Three core courses must be taken, corresponding to a total of 9 credits. In addition, the student selects three other ME or MECH courses (9 credits) at the 300 and 400 level. The remaining 12 credits are free electives chosen such that all courses for the MS degree satisfy the University distribution requirements for Master's degrees. Students completing a thesis-based MS must take 6 credits of ME 490 as part of their free electives. Students completing a project-based MS must take 6 credits of ME 460 as part of their free electives. MS students who previously completed graduate courses at another institution but did not apply those courses toward a prior degree may petition for evaluation of eligibility for transfer credit, subject to the University requirements for graduate transfer credits.

Required Core Course in Engineering Mathematics:		3 credits
ME 452	Mathematical Methods in Engineering I	
Required Core Courses in MEM (choose two courses):		6 credits
ME 402	Advanced Manufacturing Science	
ME 413	Numerical Methods in Mechanical Engineering	
ME 423	Heat and Mass Transfer	
ME 430	Advanced Fluid Mechanics	
ME 433	Linear Systems and Control	
ME 453	Mathematical Methods in Engineering II	
MECH 408	Introduction to Elasticity	
MECH 425	Analytical Methods in Dynamics and Vibrations	
MEM Electives (choose three courses):		9 credits
Three courses (9 credits) selected from ME and MECH courses at the 300 and 400 level, excluding ME 460 (Project) and ME 490 (Thesis). Only one ME or MECH course in this group may be at the 300 level.		
Free Electives (choose four courses):		12 credits
Four courses (12 credits) at the 300 and 400 selected level from ME and MECH courses or from another department. Up to two courses from another department may be taken at the 200 level.		

4.2.2 MS Tracks

MEM offers three tracks for completion of the MS in ME degree. All tracks lead to the same awarded degree. Students select one of the three tracks as follows:

1. **Thesis Option** – Six credits of ME 490 (Thesis) must be taken as part of the free electives.
2. **Project Option** – Six credits of ME 460 (Project) must be taken as part of the free electives.
3. **Applied & Interdisciplinary Engineering Option** – Free electives may be selected from lecture-based courses in MEM or any other department.

By default, all newly admitted MS students are enrolled in Track 3 and their academic advisor is the Director of Graduate Studies.

Students who wish to complete Track 1 (Thesis) or Track 2 (project) must obtain the agreement of an MEM faculty member to serve as their advisor. The MEM Advisor Agreement Form must be submitted before registering for ME 490 (Thesis) or ME 460 (Project). Thesis and project credits may be supervised by any voting MEM faculty member.

The availability of MEM faculty for thesis or project supervision is not guaranteed. Students are responsible for contacting MEM faculty to identify possible thesis or project opportunities.

Students in any track who wish to complete free elective courses outside MEM must be approved by their advisor. Registration for these courses may also require instructor/department approval. The student is responsible for securing any required approvals for courses outside MEM.

4.2.3 MS with Thesis Eligibility

Students who wish to complete MS Track 1 (Thesis) must obtain agreement from an MEM faculty member to supervise their work. The thesis advisor is responsible for providing advice and guidance related to the student's thesis research. The thesis advisor also assigns a letter grade for ME 490 credits and serves as the academic advisor for the purposes of assisting the student with planning their Program for Master's Degree. The MEM Advisor Agreement Form must be completed prior to registration for ME 490.

A thesis advisor may withdraw their agreement to supervise a student by notifying the student and the Director of Graduate Studies in writing. In this situation, the student may transfer to the supervision of a new thesis advisor by submitting a new MEM Advisor Agreement Form. If a new thesis advisor cannot be identified, the student must convert to MS Track 2 or Track 3 status as follows:

- If the student has already completed ME 490 or is currently registered for ME 490 (course in progress after the drop/add deadline), the student may petition to convert ME 490 Thesis credits to ME 460 Project credits. If the petition is approved, the Director of Graduate Studies will become the student's advisor and will assign a letter grade for ME 460.
- If the student has not yet completed ME 490, they will be converted to Track 3 and the Director of Graduate Studies will become the student's advisor.

After the withdrawal of a thesis advisor's agreement to supervise a thesis, the student must identify a new thesis advisor, change tracks, and/or complete any required petitions no later than the tenth day of classes of the next semester.

4.2.4 MS with Project Eligibility

Students who wish to complete MS Track 2 (Project) must obtain agreement from an MEM faculty member to supervise their work. The project advisor is responsible for providing advice and guidance related to the student's project. The project advisor also assigns a letter grade for ME 460 credits and serves as the academic advisor for the purposes of assisting the student with planning their Program for Master's Degree. The MEM Advisor Agreement Form must be completed prior to registration for ME 460.

A project advisor may withdraw their agreement to supervise the student by notifying the student and the Director of Graduate Studies in writing. In this situation, the student may transfer to the supervision of a new project advisor by submitting a new MEM Advisor Agreement Form.

If a new project advisor cannot be identified, the next steps will be:

- If the student has already completed ME 460 or is currently enrolled for ME 460 (course in progress after the drop/add deadline), the Director of Graduate Studies will become the student's advisor and will assign a letter grade for ME 460.
- If the student has not yet completed ME 460, they will be converted to Track 3 and the Director of Graduate Studies will become the student's advisor.

After the withdrawal of a project advisor's agreement to supervise a project, the student must identify a new project advisor, change tracks, and/or complete any required petitions no later than the tenth day of classes of the next semester.

4.2.5 Seminar Attendance

Full-time MS students are required to attend at least 75% of MEM department seminars in each academic year. Part-time and distance students are exempt from seminar requirements. One seminar credit per semester may be earned by attending another research seminar on campus and submitting a written summary to the Director of Graduate Studies for approval.

5 DOCTOR OF PHILOSOPHY DEGREE REQUIREMENTS

5.1 GENERAL REQUIREMENTS

All Doctor of Philosophy (PhD) degrees granted by Lehigh University must satisfy the common University requirements, defined in R&P §3.23 *Requirements for Doctor of Philosophy Degree*. These rules reflect the minimum requirements at the University level. Additional college and department rules are also enforced.

5.1.1 University Definition

The PhD degree is conferred on candidates who have demonstrated general proficiency and high attainment in a special field of knowledge and capacity to carry on independent investigation in that field as evidenced by the presentation of an acceptable dissertation embodying the results of original research.

5.1.2 Time Requirements

A PhD candidate is ordinarily expected to devote three or more academic years to resident graduate study. In no case is the degree awarded in less than two full academic years of graduate work. Graduate work done in residence at another institution may be accepted in partial fulfillment of the time requirements.

All work submitted in a program for the PhD degree must be completed within a 10-year period. A candidate entering a doctoral program with a master's degree after an interruption of at least one semester must complete all work toward the PhD within seven years.

In MEM, PhD-seeking students may not register for more than 9 credit hours in any regular semester while appointed as a Research Assistant or Teaching Assistant. Petitions for a waiver of these requirements may be considered in extraordinary circumstances and require approval of both the Department Chair and Director of Graduate Studies.

5.1.3 Concentrated Learning Requirement

A PhD candidate must complete two semesters as a full-time graduate student or at least 18 credit hours of Lehigh graduate study within a 15-month period, either on or off campus.

5.1.4 Credit Requirements

Students who enter a Lehigh doctoral program post-baccalaureate must complete a minimum of 72 Lehigh credit hours. Students who enter a Lehigh doctoral program with a Master's degree from another institution must complete a minimum of 48 Lehigh credit hours. Students seeking to receive both a Master's degree and PhD must complete a minimum of 72 Lehigh credit hours and meet the requirements of both degrees.

5.1.5 Composition of Doctoral Committees

The University rules require that the minimum number of committee members is four and each must hold a doctoral degree. At least three committee members, including the committee chair, must be voting Lehigh faculty members. The fourth committee member must be from outside the student's major department. Committees may include additional members who possess the requisite expertise. Refer to R&P §3.23.3 for complete rules regarding doctoral committee composition.

In MEM, the doctoral committee chair and at least one other committee member must hold primary appointments in MEM. If the committee chair holds less than a 50% appointment in MEM, a minimum of two additional committee members must hold primary appointments in MEM.

5.1.6 Admission to Candidacy

The University requires that PhD-seeking students spend at least one semester in concentrated learning before they may be accepted as candidates. Admission to candidacy requires the endorsement of the major

department. Refer to R&P §3.23.3 for complete University rules regarding admission to candidacy. Refer to §5.2.6 below for the RCEAS admission to candidacy procedure following approval of the PhD proposal.

5.1.7 Transfer Credits

No transfer credit may be awarded to reduce the minimum credit requirements of any degree beyond a Master's degree. PhD students who completed graduate courses elsewhere may be eligible to petition for a waiver of PhD coursework requirements; see §5.2.3 below.

5.2 DOCTOR OF PHILOSOPHY IN MECHANICAL ENGINEERING

5.2.1 PhD Eligibility

Students who wish to complete a PhD must obtain agreement from an MEM faculty member to supervise their work. The dissertation advisor is responsible for providing advice and guidance related to the student's research. The doctoral advisor also serves as the doctoral committee chair and academic advisor for the purposes of assisting the student with planning their coursework. The MEM Advisor Agreement Form must be completed prior to registration for ME 499 (Dissertation) and prior to completing any steps of the MEM pathway to PhD candidacy.

A dissertation advisor may withdraw their agreement to supervise a student by notifying the student and the Director of Graduate Studies in writing. In this situation, the student may transfer to the supervision of a new dissertation advisor by submitting a new MEM Advisor Agreement Form. If a new dissertation advisor cannot be identified, the student must convert to Master's degree-seeking status as follows:

- If the student has already completed ME 499 or is currently registered for ME 499 (course in progress after the drop/add deadline), the student may petition to convert up to 6 credits of ME 499 Dissertation to ME 490 Thesis or ME 460 Project credits in partial fulfillment of MS Track 1 or MS Track 2.
- If the student has not yet completed ME 499, they will be converted to MS Track 3 and the Director of Graduate Studies will become the student's advisor.

After the withdrawal of a dissertation advisor's agreement to supervise a thesis, the student must identify a new dissertation advisor, change to MS-seeking status, and/or complete any required petitions no later than the tenth day of classes of the next regular semester.

Any student admitted without an intended PhD advisor must submit a signed Advisor Agreement or transition to one of the MS tracks by the tenth day of classes of the third regular semester.

5.2.2 Coursework Requirements

The Ph.D. program in Mechanical Engineering & Mechanics requires innovative research in collaboration with one or more faculty members, along with the completion of 72 credit hours beyond the bachelor's degree (if graduate study is carried out entirely at Lehigh University), or 48 beyond the master's degree (if obtained at another university). The first stage of Ph.D. candidacy is attained by achieving a minimum GPA of 3.35 in five core courses (see core course requirements in the table below). Beyond the five core courses, students must complete a minimum of three technical electives, to be selected in consultation with the student's advisor and doctoral committee. Ph.D. students who previously completed graduate courses at another institution may petition through a Department process for evaluation of eligibility for waiver of course requirements. The second stage of candidacy involves completion of a General Examination, which is based on an assessment of a research topic, formulation of a research proposal, and completion of an associated oral examination. Formal admission to candidacy for the Ph.D. is granted upon submittal of a proposal for the dissertation research and recommendation of the doctoral committee followed by approval of the P.C. Rossin College of Engineering & Applied Science. To complete the Ph.D. degree, the student must present and defend a dissertation before the doctoral committee.

Required Core Course in Engineering Mathematics (one course):		3 credits
ME 452	Mathematical Methods in Engineering I	
Required Elective in Engineering Mathematics (choose one course):		3 credits
ME 413	Numerical Methods in Mechanical Engineering	
ME 453	Mathematical Methods in Engineering II	
	Any 400-level math-intensive course in engineering/science/mathematics, as approved by the department.	
Required Core Courses in MEM (choose three courses):		9 credits
ME 402	Advanced Manufacturing Science	
ME 423	Heat and Mass Transfer	
ME 430	Advanced Fluid Mechanics	
ME 433	Linear Systems and Control	
MECH 408	Introduction to Elasticity	
MECH 425	Analytical Methods in Dynamics and Vibrations	
Technical Electives (choose three courses):		9 credits
Three courses (9 credits) selected from ME and MECH courses at the 400 level, or at 400 level from another department.		
Additional Requirements:		
ME440	General Examination	3 credits

5.2.3 Waiver of PhD Coursework Requirements

A PhD-track student who has taken courses while enrolled as a graduate student at another institution may petition to have completed courses reviewed for equivalence with Lehigh courses and counted toward PhD coursework requirements. Course waivers may be granted for:

- Up to one course equivalent for Engineering Mathematics (ME 452, ME 453, or ME 413)
- Up to one course equivalent for core courses in MEM (ME 423, ME 430, ME 433, MECH 408, or MECH 425)
- Up to three course equivalents for technical electives

The maximum number of courses that can be waived is five, leaving a minimum of three courses to be completed at Lehigh. An approved waiver of PhD coursework requirements does not reduce the number of credits required for the PhD (48 credits after a Master's degree, or 72 credits after a Bachelor's degree).

Students who are interested in submitting a petition for waiver of PhD coursework requirements should consult the Director of Graduate Studies for instructions regarding documentation to be submitted with the waiver petition. All waiver petitions require a written statement of support from the student's PhD advisor.

5.2.4 Pathway to the PhD in Mechanical Engineering

To obtaining a PhD in Mechanical Engineering, students must complete the following steps in order:

1. **Submit a signed Advisor Agreement Form** to the Graduate Program Coordinator.
2. **Complete five core courses with a minimum GPA of 3.35/4.0** within the first three semesters of graduate study. The core courses used to evaluate the GPA are the first five core courses taken. Core courses may not be repeated. ME453 is required for PhD students and must be completed before admission to candidacy, but may be taken after the core course GPA requirement has been met. A student who does not meet the GPA requirement may petition to be allowed to continue in the PhD program. A letter of support from the dissertation advisor is required. The proposed action for academic remediation may include: (a) take one replacement core course in engineering mathematics or core course in MEM, or (b) take one replacement course in the form of a (non-core) advanced course. The replacement course may only be taken after the petition is approved and the course instructor is made aware of the student's petition for grade replacement.
3. **Form the PhD committee.** A PhD committee (also known as a doctoral committee) is required for administration of the General Exam. The committee is responsible for administration of the General Examination and oversight of the student's program of study.
4. **Complete the General Examination.** See §5.2.5 below for detailed procedures. The University requires that the General Exam be completed no later than seven months prior to the expected degree awarding date. The General Exam must be completed no later than the fourth semester of full-time enrollment.
5. **Present the proposal for the PhD program to the PhD committee.** See §5.2.6 below for detailed procedures. The Proposal must be presented and approved within one year from the date the student passed the General Exam. The Proposal must be completed not less than three months after passing the General Exam.
6. **Apply for PhD candidacy at the College level.** See §5.2.7 below for detailed procedures.
7. **Present the dissertation defense.** See §5.2.8 below for detailed procedures.
8. **Apply for Graduation.**

Petitions for approval to deviated from the expected timelines may be submitted and are approved by the Director of Graduate Studies and Department Chair.

5.2.5 General Examination

The 3.35 GPA minimum for the five core courses must be met before a student becomes eligible to register for the General Examination course (ME 440). The General Examination must be completed no later than the fourth semester of graduate study.

Upon request to the MEM Graduate Coordinator, the doctoral advisor will be assigned a unique section of ME 440. Students must register for the section of ME 440 corresponding to their PhD advisor. Registration for ME 440 must be completed and the names of the PhD committee members submitted to the department by the tenth day of classes of that semester.

The General Examination is an assessment of independent critical thinking and research aptitude. The doctoral advisor chooses the exam topic, with approval from the doctoral committee. The topic is typically drawn from a recent journal article that is related to but not within the scope of the student's completed

research. The topic for the General Exam must be assigned no later than the tenth day of classes of the semester in which the student registers for ME 440.

The General Exam has two parts:

- During the first half of the semester, the student prepares a literature review on the topic and identifies several major unresolved issues or research opportunities. The literature review must not exceed seven pages, not including figures and tables. The preliminary report with the literature review must be submitted to the doctoral committee no later than the midpoint of the semester.
- During the second half of the semester, the student formulates a hypothetical research proposal that extends beyond the assigned topic and addresses one or more of the major unresolved issues identified in the literature review. At a minimum, the proposed research extension must be appropriate in depth and rigor for at least one publication in a typical peer-reviewed venue (e.g., journal or conference) in the student's research area. The final general exam report, including literature review and proposed research extension must not exceed ten pages of text, not including figures and tables.

The department does not impose specific requirements for General Examination report formatting or bibliographic citations. Advisors may establish formatting guidelines for their research groups based on the norms in their research area.

The written report must be exclusively the student's own work and ideas. Consultation with any person outside the doctoral committee for assistance with the General Examination is strictly prohibited. The use of generative artificial intelligence or large language models (e.g., ChatGPT) to write the final report is strictly prohibited.

The student must submit the General Examination report to the doctoral committee and schedule the oral exam to be completed by the last day of classes. The oral exam consists of a 30-minute presentation by the student to the committee, followed by question and answer.

The doctoral committee decides on a grade to be assigned for ME 440 based on the written report and oral examination. To pass the General Examination, a minimum grade of B+ must be assigned to ME 440.

If the committee determines that the student must complete additional work to address a shortcoming of the General Examination, the advisor may assign a grade of Incomplete. The requirements for removal of incomplete must be provided to the student in writing with a deadline of not more than a few weeks.

If the committee assigns a grade of B or lower, the student must retake the General Examination in the following semester on a different topic than the original exam. The General Examination may be taken only twice.

The General Examination must be passed at least seven months before the degree is to be conferred. This is a non-negotiable University requirement.

The [form for General Examination approval](#) is completed online via DocuSign.

A copy of the final General Examination report must also be submitted to the MEM Graduate Coordinator.

5.2.6 PhD Proposal

The General Examination must be passed before the student becomes eligible to defend their PhD Proposal. The Proposal must be presented and approved within one year from the date the student passed the General Exam. The Proposal must be completed not less than three months after passing the General Exam.

The PhD Proposal consists of a written summary of the student's completed and planned research, all graduate coursework completed and remaining, and any other anticipated professional development activities.

The department does not impose specific requirements for organization or formatting of the PhD Proposal. Advisors may establish guidelines for their research groups based on the norms in their research area.

The proposal approval process consists of a 30-minute oral presentation to the doctoral committee, followed by question and answer. If the committee does not approve the proposal, written feedback must be provided to the student with a deadline for completion.

The [form for PhD Proposal approval](#) is completed online via DocuSign.

A copy of the approved proposal and the student's current curriculum vitae (CV) must also be submitted to the MEM Graduate Coordinator.

5.2.7 Admission to Candidacy

After the doctoral committee approves the PhD Proposal, the student must apply for PhD candidacy at the college level. The [form for Application to Candidacy](#) is available online and includes a list of documentation that must be submitted to the RCEAS Manager of Graduate Programs for review and approval.

Upon admission to candidacy, if the number of credits required to reach the degree credit hour minimum is 3 credits or more, the student must register for at least 3 credits until only 2 or 1 credit(s) remain. When less than 3 credits remain, the student must apply for Maintenance of Candidacy two times per year.

5.2.8 Dissertation Preparation and Defense

Upon completion of coursework and research, the candidate prepares a written dissertation describing the results and conclusions of their research. A written dissertation draft is submitted to the doctoral committee, and the candidate presents a public defense of the dissertation. A dissertation defense announcement must be sent to all faculty and graduate students in the department and posted within the department at least one week before the defense is given. A satisfactory defense of the dissertation and acceptance of the written draft by the doctoral committee completes the departmental requirements for the doctoral degree. The dissertation must also conform to the guidelines described in the RCEAS [Graduate Student Handbook](#). Candidates should be especially aware of strict timelines for submitting drafts of the dissertation. These timelines are indicated in the University [academic calendar](#).

5.2.9 Publication Requirement

Two or more manuscripts must be submitted for peer-reviewed journal publication prior to the dissertation defense. At least one of these manuscripts must have gone through a first external review process. A student may petition, with detailed justification, to account for unusual preparation efforts, for example: submittal of a single manuscript to an extraordinarily competitive journal, an unreasonably long review time for a submitted manuscript, or alternate products consistent with the indicators of scholarship in the student's area of research.

5.2.10 Seminar Attendance

Full-time PhD students are required to attend at least 75% of MEM department seminars in each academic year. Students who are away from campus for an extended period during the regular academic semester may petition for a temporary waiver of seminar attendance requirements. One seminar credit per semester may be earned by attending another research seminar on campus and submitting a written summary to the Director of Graduate Studies for approval. Failure to meet seminar attendance requirements may result in loss of eligibility for departmental financial support (e.g. teaching assistantship) or assignment of remedial actions at the discretion of the Director of Graduate Studies.

5.2.11 Distance Education and Remote Work Requirements

R&P §3.23.2 defines a concentrated learning requirement for all Lehigh doctoral students. To fulfill the concentrated learning requirement for the doctoral degree, a candidate must complete two semesters as a full-time graduate student or at least 18 credit hours of Lehigh graduate study within a fifteen-month period either on or off campus. The concentrated learning requirement is intended to ensure that doctoral students spend a period of concentrated study and intellectual association with other scholars.

In addition to the University requirement, MEM imposes the following residency requirement on PhD-track students after they have passed the General Examination. PhD students who perform their research at a remote location are required to have ongoing intellectual association at Lehigh. The student must complete at least one of the following activities each semester they are away from campus:

- A 20-minute presentation on a recent research article of direct relevance to the student's research.
- A 20-minute presentation with recent updates and results from the student's research.
- Frequent participation in teleconference (e.g., Zoom) research group meetings with the PhD advisor and other doctoral students.

Presentations must be given to a group that includes other graduate students and the PhD advisor and must be followed by extensive discussion and interaction. The student must submit copies of presentations and records of meeting dates and attendees to the Graduate Program Coordinator to fulfill the department residency requirement.

6 PETITIONS

Permission to deviate from the rules set forth in this document will be considered on a case-by-case basis. Consult with the Graduate Program Coordinator and the Director of Graduate Studies for guidance on the type of petition required (e.g., internal departmental petition, Registrar petition, and/or University Standing of Graduate Students (SOGS) committee petition) and the supporting documentation needed.

7 STUDENT CODE OF CONDUCT

All students enrolled in MEM graduate programs fall under the jurisdiction of the [Lehigh University Student Code of Conduct](#). This document defines the expectations for conduct pertaining to academic integrity, respect for others, respect for property, respect for the Lehigh University community, respect for self, and respect for the law.

Students are responsible for knowing and adhering to the expectations outlined in the Code of Conduct.

The Code of Conduct defines procedures for handling alleged violations. Disciplinary sanctions for Code of Conduct violations may include a written warning, a failing grade for an assignment or course, probation, suspension, expulsion, withholding of degree, or revocation of degree.

8 REVISION HISTORY

Revision Number	Revision Date	Revision Details
Unnumbered	January 18, 2023	Includes checklist for implementation of new version of General Examination for Doctoral Track Students.
MEM Grad Handbook v24.1	June 7, 2024	Revision of MS and PhD curriculum tables to match University course catalog changes in academic year 2024-25, which were approved by the MEM faculty due to the need for DegreeWorks audit implementation. Other changes include minor clarifications to departmental procedures related to the pathway to the PhD. New rules pertaining to advisor agreement have been added.
MEM Grad Handbook v24.2	November 14, 2024	Clarification of rules for timing of the assignment of the General Exam topic during the completion of ME 440. Removal of an obsolete reference to MECH 406. Implemented consistent formatting throughout to include a space between course prefix and course number.
MEM Grad Handbook v25.1	March 17, 2025	Revision of PhD math requirements to allow more freedom of choice for the second math course.