

MAE Direct-to-PhD Program (d-PhD) Student Guide

Hello MAE Direct-to-PhD Students,

Included in this guide is important information to help ensure you are meeting all of the requirements for the Mechanical and Aerospace Engineering d-PhD program. Please review this information– and the sourced referenced, to better understand your responsibilities as a MAE graduate student.

Quick Guide to Resource Links Provided in this Guide

Quick links are provided here for quick access, but many of these links will make more sense after reading through the guide.

University Calendars - <https://studentservices.ncsu.edu/calendars/>

Graduate Student Handbook - <https://www.ncsu.edu/grad/handbook/index.php>

Graduate School Forms - <https://grad.ncsu.edu/faculty-and-staff/forms/>

MyPack Portal User Guide - <https://sis.emas.ncsu.edu/students/>

[Student Information System Training Manual](#)

- Creating a Plan of Work (pg. 4)
- Creating an Advisory Committee (pg. 7)
- Applying for Graduation (pg. 12)

[How to create a Plan of Work](#) (video)

ETD Deadlines & Information - <https://grad.ncsu.edu/students/etd/>

MAE Graduate Advising Website - <https://www.mae.ncsu.edu/academics/graduate-programs/graduate-advising/>

MAE Graduate FAQ - <https://www.mae.ncsu.edu/graduate-faqs/>

Table of Contents

(click heading to skip to section)

Direct-to-PhD Doctoral Degree Requirements	3
Enrollment & Credit Hour Requirements.....	4
Plan of Work & Advisory Committee Explained	5
Timeline for Creating Your Plan of Work	5
Building Your Committee	6
The Plan of Work Approval Process:	6
Examples of Plan of Work for d-PhD.....	7
d-PhD Qualifying Exam.....	8
PhD Preliminary Examination	9
PhD Final Examination (Final Defense)	10
Electronic Theses and Dissertations (ETD) Information.....	11
Applying to Graduate (MyPack Portal)	11
D-PhD Semester-by-Semester Program Checklist	12

Direct-to-PhD Doctoral Degree Requirements

The MAE d-PhD program is unique to our standard PhD program in that students received a non-thesis Master's degree en-route to completing the PhD degree program. As such, all d-PhD students complete a MS Graduate Plan of Work (PoW) and a PhD PoW during their academic program.

Students must first unconditionally pass both the Qualifying Exam and PhD Preliminary Examination before requesting to receive the master's degree. Degree requirements for both portions of the academic program are explained below.

Direct-to-PhD degree requirements:

- Minimum GPA: 3.0
- Graded Courses: You must have a minimum of 39 credits from graded courses
 - o Up to 5 courses (15 credits) can be from non-MAE courses approved by your advisor
 - o For an optional minor – 3 courses must be in the same program
- 700-level courses: All PhD students must take at least two 700-level courses.
- Research Credits: You must have a minimum of 24 credits of MAE 895
- Total Credits required is 72

En-route Master's (non-thesis) degree:

- Graded Courses: 10 of the graded courses from your PhD degree also fulfill the degree requirements to receive a MS (non-thesis) degree.

Enrollment & Credit Hour Requirements

All students are required to maintain Full-Time Enrollment

- Full-Time Enrollment means you must take 9 to 15 credit hours per semester. The MAE Graduate Office recommends that students take no more than 12 credit hours per semester.
- Students who are not registered as full-time students by Census Day (the 10th day of classes each semester) lose their eligibility for student loans, international students will be out of compliance with their visa requirements, and all students lose eligibility for the Graduate Student Support Plan (GSSP).
- Read more in the Graduate Handbook: [section 3.14b Requirements for Full/Half-Time Registration](#)

All students are required to maintain Continuous Enrollment

- Continuous Enrollment means there is no break in your enrollment/registration. If you have a break in your enrollment you will need to re-apply to the program.
- It is possible to file a Leave of Absence for up to two (2) semesters during your academic career at NCSU.
- Read more in the Graduate Handbook: [section 3.14a Requirements of Continuous Enrollment](#)

Students are generally not expected to be enrolled for summer courses UNLESS you are scheduling your Final Exam (defense)

- Students taking their PhD Preliminary exams over the summer are not required to be registered for courses.
- Students scheduling the PhD Final Exam over the summer, including the summer-fall intersession, are required to register for at least one credit in the summer term in which you defend. Typically, defending graduate students will register for 1 credit of MAE 696 or 896 which is a 10-week summer session at a discounted price.

Enrollment guidelines for the final semester

- If you have completed all credit hour requirements for the PhD degree, including research credits and the Oral Preliminary Exam, you can register three (3) credit hours of MAE 899 (Doctoral Dissertation Preparation) to maintain full-time status.
- In certain cases, international students who are in their very last semester may file a Reduced Course Load form through OIS and register for just one (1) credit hour. Please see the MAE Graduate Office if you feel this applies to you. If you are eligible, this request must be made before the first day of classes of the requested semester.

Full-time Enrollment Waiver

Upon successful completion of 69 credit hours toward the degree, all PhD students will automatically receive a 3-credit hour full-time enrollment waiver. This means, the student will automatically be considered a full-time student when enrolled in just 3 credit hours. Once this waiver has been activated it will remain active through the completion of the PhD program.

Plan of Work & Advisory Committee Explained

All MAE graduate students must submit their Plans of Work by the end of the second semester they are enrolled—before the Qualifying Exam.

Plan of Work

The Graduate Plan of Work (PoW) is a document that serves both as a guide to successful degree completion and a contract between students and their degree program. Your POW should include the minimum credit hour and course requirements specific to your degree. This plan serves to reduce the potential for misunderstandings about degree requirements and outlines the expected academic progress students should make during their academic career. It should be viewed as a “living document” that can be reset and updated as students continue to develop and refine their academic programs.

Access your PoW in MyPack Portal by navigating to **Student Homepage > Planning and Enrollment tile > Graduate Plan of Work**.

Advisory Committee

The primary function of the committee is to advise the student in all aspects of the educational program and to monitor and evaluate progress toward and completion of the degree. Thus, the committee must be active throughout students' programs, beginning with helping students prepare the Plan of Work. The committee should provide an intellectually stimulating foundation for the student's professional as well as scholarly development and should be sensitive to any difficulties in the student's progress. The committee certifies whether the student has met NC State's standards for a graduate degree. Advising and guiding the student on how best to fulfill the degree requirements is a critical element of this responsibility. Changes to an approved committee can only be made by formal request to the Graduate School.

Access your PoW in MyPack Portal by navigating to **Student Homepage > Planning and Enrollment tile > Graduate Plan of Work > Committee tab**.

Timeline for Creating Your Plan of Work

Semester 1 and 2: Create Plans of Work and Advisory Committee

Once your en-route MS plan is added, proceed with creating your MS PoW and your PhD PoW in MyPack Portal. Submit both PoWs for approval at the same time. The PoWs must be approved before completing the QE.

- MS (non-thesis) PoW should only include 10 graded courses (30 credit hours). You will also include these courses on your PhD PoW.
- PhD PoW should include a minimum of 13 graded courses, and minimum of 24 credit hours of research (MAE 895).

Continues on next page

Continuously: review and edit your PhD Plan of Work as needed

- The PoW review and modification process can be done continuously, especially if the classes you take do not match your original Plan of Work.
- We recommend reviewing your Plans of Work with your advisor at least once a year.

Second-to-Last Semester: your PhD Plan of Work MUST be approved (no edits should need to be made to your PoW at this point)

- This must be done prior to scheduling the Final Exam.

Building Your Committee

The MS (non-thesis) Advisory Committee is comprised of one person, the Chair. The Chair of your committee is your Faculty Advisor.

The PhD Advisory Committee is comprised of at least 4 people (at least three of them must be from the MAE department):

- i. The Chair
- ii. Three (3) Members
 - a. One Member must be designated as an 'Outside Rep'. This member must be a non-MAE graduate faculty member at NC State University and will act as the Graduate School Representative (GSR).
 - b. If you have two Co-chairs only two additional Members are required.

Have a minor? If you have a minor, then a minor representative must also be included on the advisory committee.

Note: Interinstitutional members, committee members representing your minor, and your Committee Chair/Co-Chair are roles that cannot not serve as a GSR. Advisory Committee requirements and guidelines are outlined in the Graduate Handbook ([section 3.2 Advisory Committee](#)).

The Plan of Work Approval Process:

- 1) Submit your Plans of Work in MyPack Portal (at the same time).
- 2) Committee approval: each committee member listed on a PoW is required to approve a PoW.
- 3) Departmental approval: the director of graduate programs (DGP) reviews the PoW for departmental approval.
- 4) Graduate School approval

Note: If at any time in the process your PoW is denied, a comment will be made and your PoW will be reset. Click the *Comments* tab of your PoW to read comments regarding the required changes that should be made. Once the necessary changes have been made, you can resubmit your PoW for approval again, and the approval process will start over (Committee approval, DGP approval, then Graduate School approval).

Helpful Resource: [Student Information System Training Manual](#)

- Creating a Plan of Work (pg. 4)
- Creating an Advisory Committee (pg. 7)
- Applying for Graduation (pg. 12)

d-PhD Qualifying Exam

All Direct-to-PhD students are required to complete a Qualifying Exam (QE). This a MAE departmental requirement that can be taken as early as the second semester you are enrolled, but MUST be completed no later than the end of the third semester. Both the MS Plan of Work and the PhD Plan of Work must be approved before scheduling this exam. A minimum of three of advisory committee members must participate in administering the QE.

Qualifying Examination (QE)

The below guidelines must be followed when completing the QE:

- QE will be administered by the student's faculty advisor no later than the end of the third semester.
- Once completed, the faculty advisor must email a student's completed QE to the MAE Graduate Office (mae_gradoffice@ncsu.edu).
 - The faculty advisor is required to complete a Qualifying Exam Cover Sheet that is to be submitted with a completed QE. This cover sheet is located on the MyMAE departmental website.
- If a student does not pass the QE, a second (and final) attempt can be made in the following semester.

PhD Preliminary Examination

The Preliminary Exam is a Graduate School requirement and can be scheduled once you successfully complete all *graded* coursework for your degree. The Prelim Exam must be completed by the end of the 7th semester; meaning all graded courses must be completed by end of the 6th semester.

Upon completing all graded coursework each doctoral student is required to complete a preliminary examination (per [Graduate School policy](#)). This examination has two parts; a written examination and an oral examination.

- i. Written Prelim – The written prelim exam must be completed and submitted to the MAE Graduate Office before a request for the oral prelim exam can be submitted. The preliminary written exam will take the form of a Dissertation Proposal. The proposal must be 5-6 pages in length and contain the following information:

- Motivation
- Methodology
- Research Objectives
- Proposed Work
- Timeline
- References

For sample dissertation proposals, visit the [MAE Graduate FAQ Page](#) (*Thesis/Dissertation Examinations* section)

- ii. Oral Prelim – Upon successful completion of the written prelim students can proceed with requesting to schedule the oral prelim exam. The oral prelim exam generally includes a presentation of the dissertation proposal by the candidate, questioning of the candidate, and a period of deliberation and discussion.

Scheduling the Preliminary Exam

Step 1) Verify your PhD Plan of Work is approved before attempting to schedule your Preliminary Exam.

Step 2) Complete your Dissertation Proposal and share it with your entire advisory committee.

- This is also the perfect time to coordinate the date and time to perform your oral Prelim Exam.

Step 3) Email your Dissertation Proposal **and** the Oral Prelim [Exam Request Form](#) to the MAE Graduate Office.

- Your Dissertation Proposal will be added to your student file, and the Director of Graduate Programs will sign the Prelim Exam Request form before forwarding it to the Graduate School for final approval.
- Contact the receptionist in the MAE Front Office to reserve a room for your exam– if one is needed.

Step 4) Prepare for the Oral Prelim Exam

- The Chair of your advisor committee will be provided any additional instructions and paperwork required for the date of the exam.

It can be very difficult to coordinate an exam time that works for all committee members. Planning your exam day and time in advance can help ensure all committee members are present and prevent any delays in your exam completion timeline.

Note: The Graduate School must be informed if a committee Member will be attending the exam remotely and if a Member needs to be substituted or replaced **before the exam**. Contact the MAE Graduate Office for additional information.

****Upon unconditionally passing the Prelim Exam you can Apply to Graduate to receive your master's degree****

PhD Final Examination (Final Defense)

The PhD Final Oral Exam (Dissertation) is a Graduate School requirement and must be completed at least one semester (4 months) after the preliminary exam. Important: your MS and your PhD cannot be conferred in the same semester.

The dissertation is an original contribution to the literature in the field of mechanical engineering or aerospace engineering. The final oral defense is the examination of the methodology used and the conclusions reached in the research performed by the candidate, as reported in the dissertation.

Important: Your entire Advisory Committee attends your Prelim Exam (oral) and your Final Exam. The Advisory Committee is explained in more detail later in this guide.

Scheduling the Final Exam (Final Defense)

Step 1) Request to schedule your Final Exam/Dissertation – Exam must be performed before the ETD Review Deadline. The final exam must be taken at least one semester (4 months) after the preliminary exam and before the ETD Review Deadline you chose.

- Print and complete a PhD Final Exam form located on the Graduate School's [Forms](#) website.
- Reserve a conference room with the MAE Front Office and include the room number on the form
- Submit the exam request to the MAE Graduate Office for departmental approval.
 - The MAE Graduate Office will have the Director of Graduate Programs sign the request form before forwarding it to the Graduate School for final approval. The Graduate School must receive your exam at least 10 business days prior to your proposed exam date.

Step 2) Apply to Graduate for your PhD by the ETD Apply to Graduate Deadline if you have not done so already

Step 3) Upon Receiving an “Unconditional Pass” on the Final Exam/Dissertation

- Your dissertation draft must be submitted to the Electronic Thesis Dissertation (ETD) Editor within 5 days after the exam (but absolutely before ETD deadline). Additional information regarding ETD guidelines is included on pg. 11 of this handout.
- The ETD will review your thesis then send you formatting corrections to be made.
- Upon completing formatting corrections, submit your final dissertation to the ETD by the Final Error Free ETD Deadline.

Step 4) Keep an eye on your email for important information from the Graduate School, the MAE Graduate Office, or your advisor.

- You may still have important deadlines to meet with regards to graduation and officially finishing your degree. Important deadlines and information will be emailed to you by the Graduate Office, but the Graduate School and/or your advisor may have more information as well.

Note: The Graduate School must be informed if a committee Member will be attending the exam remotely and/or if a Member needs to be substituted or replaced **before the exam**. Contact the MAE Graduate Office for additional information.

Electronic Theses and Dissertations (ETD) Information

The Graduate School requires all PhD students to use the ETD, and requires you to follow the ETD deadlines. These deadlines are very strict– the Graduate School does not make exceptions if these deadlines are missed. It is your responsibility to be aware of (and meet) [ETD deadlines](#). **Every PhD student completing a dissertation has 3 ETD deadlines to meet in sequential order:**

- 1) **ETD Review Deadline** – all students must unconditionally pass the final exam and submit for the ETD Review by this deadline. Students who meet this deadline will not be allowed to register in the same academic program for any subsequent semester. The final ETD file is to be submitted before the Final ETD Approval Deadline and committee approval must be completed by the Final ETD Committee Approval Deadline. You may choose between:
 - a. No Registration Required Deadline – meet this date in order to avoid registering for the semester in which you are graduating
 - b. Registration Required Deadline – meet this date if you are/will be registered for the semester in which you are graduating
- 2) **Final Error-Free ETD Deadline** – applies to both “No Registration Required” and “Registration Required” students. Date by which a thesis or dissertation student who met that semester’s review deadline (either the No Registration or Registration Required), must submit the final error-free ETD to the ETD Reviewer in order to graduate at the end of the semester. Graduation will still be contingent upon approval of the final ETD by the student’s advisory committee before the expiration of the Final ETD Committee Approval Deadline.
- 3) **Final Committee Approval Deadline** - applies to both “No Registration Required” and “Registration Required” students. Date by which a thesis or dissertation student must submit and have the final ETD approved by all members of their advisory committee in order to graduate at the end of the semester.

IMPORTANT: In addition to the ETD deadlines, all PhD students must complete the [Doctoral Required Forms](#). Additional information can be found on the Graduate School’s [Electronic Thesis and Dissertations](#) website.

Applying to Graduate (MyPack Portal)

All d-PhD students Apply to Graduate for the MS en-route and the PhD. You must Apply to Graduate to participate in commencement, have your degree conferred on your transcript, and receive your diploma.

- Apply to Graduate in MyPack Portal: **Student Homepage > Planning & Enrollment tile > Apply for Graduation**. Detailed instructions are available [here](#).
- It is advised that students apply to graduate at the same time they schedule their Final Exam

After Applying to Graduate your application will be reviewed/approved by MAE and the Dean’s Office. MAE graduate students that Apply to Graduate will be included on future correspondences regarding the MAE graduation ceremony.

D-PhD Semester-by-Semester Program Checklist

First Semester

- Add En-route master's degree plan to your student record (MS – non-thesis)
- Identify a Faculty Advisor
- Consult with faculty advisor to identify remaining members of your Advisory Committee
- Create both PoW (MS and PhD) and the respective committee for each
- Discuss the courses you intend to take during your academic career (Plan of Work) with your advisor

Second Semester

- Consult with faculty advisor to identify remaining members of your Advisory Committee
- Submit both PoW (MS and PhD) for approval
- Take Qualifying Exam as early as 2nd semester

Third Semester

- MUST complete Qualifying Exam by the end of the 3rd semester

Fourth Semester

- Review and update Plans of Work as necessary

Fifth and Sixth Semester

- Review and update you Plans of Work as necessary
- PhD students can take Preliminary Exam as early as their fifth semester (once all lecture courses are completed).

Seventh Semester (or second-to-last semester)

- Review ETD Deadlines for the term you intend to graduate (in preparation for your Final Exam).
- Complete Written Prelim Exam then schedule the oral prelim exam.
- Complete the oral prelim exam before the end of this semester.
- Apply to Graduate for MS degree ONLY AFTER unconditionally passing Oral Prelim Exam

Eighth Semester (or final semester)

- Apply to graduate in MyPack Portal.
- Schedule and perform the final exam– adhering to all applicable ETD deadlines.