

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/>

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Direct-to-PhD Doctoral Degree Requirements

The Direct-to-PhD program is unique to our standard PhD program— students received a Master's (non-thesis) degree en-route to completing the PhD degree. As such, all d-PhD students complete a MS Graduate Plan of Work (Option B) and a PhD Plan of Work (PoW) during this academic program. To receive the master's degree you must first unconditionally pass both the Qualifying Exam and PhD Preliminary Examination. Degree requirements for both portions of the academic program are explained below.

Master's degree requirements (non-thesis):

- Minimum GPA: 3.0
- Graded Courses: You must have a minimum of 30 credits from graded courses
 - o Up to 3 courses (9 credits) can be from non-MAE courses approved by your advisor
- 700-level courses: All PhD students must take at least two 700-level courses. D-PhD students can start taking these in their MS program.
- Research Credits: N/A
- Total Credits required is 30

PhD degree requirements:

- Minimum GPA: 3.0
- Transfer Credits: 30 Credit hours from MS PoW
- Graded Courses: You must have a minimum of 18 credits from graded courses
 - o Up to 2 courses (6 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

Enrollment & Credit Hour Requirements

All students are required to maintain Full-Time Enrollment

- Students enrolled in 9 credit hours or more are considered full-time. Although students are permitted to enroll in up to 15 credit hours, the MAE Graduate Office recommends students take no more than 9 credit hours per semester.
- Students who are not enrolled full-time 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 not required to be enrolled over the summer semester UNLESS they are scheduling their final exam/defense

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

Enrollment for your final semester before graduating

- If you have completed all of the credit hour requirements for your degree, including research credits and the Oral Preliminary Exam, but need to complete your research and/or writing and dissertation defense, you can register for a minimum of three (3) credit hours of MAE 895 (Research) or MAE 899 (Doctoral Dissertation Preparation) to maintain full-time status.
 - MAE 899 should only be taken in the final semester and does not count toward your degree requirements.
- In certain cases, international students who are in their very last semester may file a Reduced Course Load form through the Office of International Services (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.

Plan of Work & Advisory Committee Explained

All MAE graduate students must submit their PoW by the end of the second semester they are enrolled— before the QE. Though you are enrolled in a PhD program, you will be instructed by the MAE Graduate Office on how to add the MS en-route academic plan to your student record during your first semester. The MS en-route academic plan is used to confer the MS non-thesis degree.

Plan of Work

All d-PhD students will complete two Plans of Work— one for the MS degree and one for the PhD degree. 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 programs. In this way, it serves to reduce the potential for misunderstandings about degree requirements and outlines the expected academic progress students should make. It should be viewed as a “living document” that reflects changes that may occur 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 > Plan of Work tab.

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 their Plans 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.

It is best to ask the faculty member if they will serve on your committee before selecting them in MyPackPortal, that way they expect the alert.

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).
- PhD PoW should include 6 graded courses, 24 credit hours of research, and 30 transfer credits from your NCSU MS degree; this totals 72 credit hours.
 - PoW for PhD students with a minor should include 7 graded courses, 24 credit hours of research, and 30 transfer credits from your NCSU MS degree; this totals 75 credit hours. Three of the graded courses must be from the same course area to be counted as a minor.

*Examples of each PoW is on pg. 8 of this guide.

Continues on next page

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

- The review and modification process can be done continuously, especially if the classes you take do not match your original Plan of Work.
- We recommend that you review your Plan 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. If you have two Co-chairs you only need 2 additional members
- iii. A Graduate school Representative (GSR)
 - a. If one of the Members is from outside the MAE department (excluding a Co-chair) they can serve as the GSR as well.

Have a minor? If you have a minor, then one member must be from the minor program

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 PoWs through MyPack Portal (at the same time).
 - a. Remember, your Advisory Committee must be created to complete this step.
- 2) Each member will accept their role before reviewing your PoW for committee approval.
- 3) Once committee approval is complete, the DGP reviews your PoW for departmental approval
- 4) If the DGP approves your PoW, it is sent to the Graduate School for final approval.
- 5) Once the Graduate School approves your PoW you have met the PoW requirement!

Note: If at any time in the process your POW is denied, it will be sent back to you for modification. Once you make the necessary changes and re-submit your POW the process begins again.

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)

Examples of Plan of Work for d-PhD

Below are examples of how you will create each Plan of Work. Remember, the en-route master's degree program is added to your student record upon successful completion of the Qualifying Exam. An approved MS PoW is required to apply to graduate for your MS (non-thesis) degree.

The MS Advisory Committee only requires one member, the Chair– this is your Faculty Advisor.

The PhD Advisory Committee requires at least 4 committee members; a Chair, three (3) Members, and one Graduate School Representative. These requirements are outlined in the NCSU Graduate Handbook ([section 3.2 Advisory Committees](#)).

MS (non-thesis) Plan of Work Example	
Course Type	Credits
MAE Graded Course	3.0
Graded Course (or non-MAE)	3.0
Graded Course (or non-MAE)	3.0
Graded Course (or non-MAE)	3.0
Total Credits	30.0

PhD Plan of Work Example	
Course Type	Credits
Transfer Credit (from MS)	30.0
MAE Graded Course	3.0
MAE Graded Course (or minor) or MAE 895	3.0
MAE Graded Course (or minor) or MAE 895	3.0
MAE Graded Course (or minor) or MAE 895	3.0
MAE 895 (Dissertation Research)	24
Total Credits	72.0

Special Notes:

- Your PoW should only include the minimum credit hour requirements for the respective degree.
- A 400-Level course can only be included on the MS PoW (per Graduate School)
- The only 800-Level courses you should include on your PoW are 893, 895, or 896.

d-PhD Qualifying Exam

All Direct-to-PhD students are required to complete a Qualifying Exam. 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 the Qualifying Exam. A minimum of three committee members must be involved in administering the exam. Upon successful completion of the QE D-PhD students will be instructed by the MAE Graduate Office to add the en-route MS degree program to their student record.

Qualifying Examination (QE)

The below guidelines must be followed when completing the QE:

- QE will be administered by the student's PhD committee no later than the end of the third semester.
- You, your faculty advisor, and at least two other committee members will identify written questions for the QE and the timeframe in which the exam must be completed.
- Your completed QE exam should be submitted to the MAE Graduate Office by your Faculty Advisor
- 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:

- | | |
|--|---|
| <ul style="list-style-type: none"> • Motivation • Methodology • Research Objectives | <ul style="list-style-type: none"> • 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 you can submit the request to schedule your oral prelim. The oral preliminary exam generally includes a presentation 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.

Instructions on creating your PoW start on pg. 6 of this guide

Step 2) Complete written Preliminary Examination (Dissertation Proposal)

Instructions on creating your Dissertation Proposal are on pg. 6 of this guide

Step 3) Request to schedule your oral Preliminary Exam

- Print and complete an Oral Prelim Exam form located on the Graduate School's [Forms](#) website.
- Reserve a conference room with the MAE Front Office and include it on the form
- Submit the exam request to the MAE Graduate Office (3113 EB3) 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.

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 it on the form
- Submit the exam request to the MAE Graduate Office (3113 EB3) 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 yet

- Additional information regarding ETD guidelines is included on pg. 11 of this handout.

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.

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 the degree posted on the transcript, and receive a 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 exams (Prelim and Final)

After Applying to Graduate your application will be reviewed/approved by MAE and the Dean's Office. MAE graduate students that applied to graduate by the deadline will receive a Graduation Survey from the MAE Graduate Office. This survey must be completed in order to be invited to participate in the departmental graduation ceremony.

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.

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
 - Graduate students cannot receive their MS degree and PhD degree in the same semester. After receiving an Unconditional Pass on prelim, PhD students must wait at least until the following semester to complete PhD program.

Eighth Semester (or final semester)

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