Hello Doctoral Students,

Included here is important information to help ensure you are meeting all of the requirements for the Mechanical and Aerospace Engineering PhD program. Please review this information, and if you have any follow up questions please email the MAE Graduate Office at mae_gradoffice@ncsu.edu.

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

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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Doctoral Degree Requirements

If you have a master’s degree from NCSU & will not be pursuing a minor:
- **Minimum GPA:** 3.0
- **Transfer Credits:** You can transfer 30 credits from the MS degree to your PhD degree
- **Graded Courses:** You must have a minimum of 18 credits from graded courses
  - Up to 2 courses (6 credits) can be from non-MAE courses approved by your advisor
- **700-level courses:** If you joined our program in Fall 2016 or later, you 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

If you have a master’s degree from NCSU & will be pursuing a minor:
- **Minimum GPA:** 3.0
- **Transfer Credits:** You can transfer 30 credits from the MS degree to your PhD degree
- **Graded Courses:** You must have a minimum of 21 credits from graded courses
  - Up to 3 courses (9 credits) can be from non-MAE courses approved by your advisor
- **700-level courses:** If you joined our program in Fall 2016 or later, you 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 75

If you have a master’s degree from outside NCSU & will not be pursuing a minor:
- **Minimum GPA:** 3.0
- **Transfer Credits:** You can transfer 18 credits from the MS degree to your PhD degree
- **Graded Courses:** You must have a minimum of 18 credits from graded courses
  - Up to 2 courses (6 credits) can be from non-MAE courses approved by your advisor
- **700-level courses:** If you joined our program in Fall 2016 or later, you must take at least two 700-level courses
- **Research Credits:** You must have a minimum of 36 credits of MAE 895
- **Total Credits** required is 72

If you have a master’s degree from outside NCSU & will be pursuing a minor:
- **Minimum GPA:** 3.0
- **Transfer Credits:** You can transfer 18 credits from the MS degree to your PhD degree
- **Graded Courses:** You must have a minimum of 21 credits from graded courses
  - Up to 3 courses (9 credits) can be from non-MAE courses approved by your advisor
- **700-level courses:** If you joined our program in Fall 2016 or later, you must take at least two 700-level courses
- **Research Credits:** You must have a minimum of 33 credits of MAE 895
- **Total Credits** required is 72

If you do not have a master’s degree (i.e. are part of the direct-to-PhD [d-PhD] program):
- **Minimum GPA:** 3.5
- **Transfer Credits:** none permitted
- **Graded Courses:** You must have a minimum of 39 credits from graded courses
  - Up to 5 courses (15 credits) can be from non-MAE courses approved by your advisor
  - For an optional minor – 3 courses must be in the same program
- **700-level courses:** If you joined our program in Fall 2016 or later, you 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
Overview of PhD Examinations

All PhD students are required to take:

1) **The Preliminary Exam** – scheduled upon successfully completion all graded courses for your degree. The preliminary exam must be completed by the end of the 5th semester for PhD students and the end of the 7th semester for Direct-to-PhD students. This means graduate students must complete their graded courses by the end of the 4th semester for PhD students, and the end of the 6th semester for Direct-to-PhD students.

   *These timeline restrictions will be required for all PhD and direct-to-PhD Students who begin their PhD in Fall 2019 or later.

2) **The PhD Final Oral Exam (Dissertation)** – To be taken at least one semester (4 months) after the preliminary exam and before the ETD Review Deadline. Missing the ETD Review Deadline may result in a delayed graduation.

**Direct-to-PhD (d-PhD) students are required to take a Qualifying Examination** within their first year (second semester). Upon successfully completing the Qualifying Examination, d-PhD students must follow the Preliminary Exam and PhD Dissertation timeline described above.
Description of PhD Examinations

Qualifying Examination (QE) - student entering our PhD program without the MS degree (Direct to PhD Program) must take the QE under the following guidelines:

- QE will be administered by the student’s PhD committee, preferably at the end of the second semester but no later than the end of the third semester. This means the student needs to form his/her PhD committee prior to taking QE.
- A minimum of three committee members must be involved in administering the exam. If the student declares a minor, a minor representative of the committee must be involved.
- Format of the exam will be determined by the student’s PhD committee. Exam problems are to be sent to the student one week prior to the time of the exam. On the day of the exam, the student will orally present the solutions before the committee.
- The student who does not pass the exam will be given a second chance in the semester immediately following the first one.

Preliminary Exam – Upon completing all graded coursework for your degree, each doctoral student is required to take a preliminary comprehensive examination. This examination has two parts; a written examination and an oral examination.

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)

*These written prelim format requirements will be required for all PhD and direct-to-Phd Students from Fall 2019. Students taking the preliminary exam prior to Fall 2019 can use this format or the previous written questions from committee members format.

Oral Prelim – Can be scheduled once written dissertation proposal been submitted to the MAE Graduate Office and approved by all committee members. The oral preliminary exam generally includes a presentation by the candidate, questioning of the candidate, and a period of deliberation and discussion.

Ph.D. Final Exam (Dissertation) - 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.
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 9 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
- While you are not expected to be enrolled, there are often courses available.
- 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 at a discounted price.

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 899 (Doctoral Dissertation Preparation) to maintain full-time status.
  - This should only be done in the final semester and does not count toward your degree.
- 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.
Plan of Work & Advisory Committee Explained

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 is especially helpful when it is evaluated on at least an annual basis by students with their advisor(s), and where applicable, their advisory committees, with any needed modifications recorded at that time. It should be viewed as a “living document” that reflects changes that may occur as students continue to develop and refine their academic programs.

As such, you will be expected to fill out your plan of work in your first semester, however, you will not ‘submit for approval’ until after you know your advisor. For additional information regarding the contents of the PoW, formulation and submission process, timing of submission and revising a PoW can be found in the Graduate Handbook (section 3.3 Graduate Plan of Work).

Plan of Work Completion Schedule

**Semester 1:** create & save your Plan of Work in your MyPack Portal
- Do not submit your Plan of Work for review yet
- Note: If you “submit” your Plan of Work for review at this point it will be rejected. If your Plan of Work is rejected, you can continue to make changes and save it until it is ready for review.

**Semester 2:** submit your Plan of Work for approval
- Identify your faculty advisor and advisory committee and submit your Plan of Work for approval

**Continuously:** review & save your Plan of Work
- 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:** review & submit your Plan of Work for approval
- This should be done prior to scheduling the Final Exam.
- Committee members accept their role as part of the PoW approval process.

*Direct-to-PhD Students (d-PhD) Only:* A PhD committee must be formed to take the Qualifying Exam. However, at this time, your advisory committee is not required to be approved in MyPack. The Graduate School does permits slight committee changes between your qualifying exam and your prelim exam, although such changes are not typical.

**Who is your “Committee”?**

Your committee is comprised of at least four members; a Chair and three Members. The Chair is your faculty advisors, while the remaining Members are other NCSU graduate faculty members. Furthermore, the Graduate School requires one of committee Members must be a Graduate School Representative (GSR). If you are unable to find a non-MAE faculty member to serve as your GSR the Graduate School will assist you with locating one prior to approving your prelim exam request.

If you have declared a minor, one of your committee Members must also be from the minor field and cannot be the GSR. These advisory committee guidelines are outlined in the Graduate Handbook (section 3.2 Advisory Committee).
Plan of Work & Advisory Committee Explained (continued)

During your second semester, you should work with your advisor to find other faculty members to serve on your committee. Your MAE advisor will be your “Committee Chairperson.” You can have up to two “co-chairs” if you would prefer (one of which would be your advisor). It is best to ask the faculty member if they will serve on your committee before selecting them, that way they expect the alert. Changes to an approved committee can only be made by formal request to the Graduate School. Note: Interinstitutional members, committee members representing your minor, and your Committee Chair/Co-Chair are roles that cannot serve as a GSR.

Once your committee is created, you are ready to submit your PoW for approval.

The Plan of Work Approval Process:
1) Submit your PoW through MyPack Portal.
   a. 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.

If this happens in your third or second-to-last semester, we recommend contacting your advisor or the DGP for help to determine why it was not approved and what changes you can make to ensure it is approved the next time you submit it.

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)
How to Schedule PhD Exams

Step 1) Create your Graduate Plan of Work (Pow)

Note: You can create your POW and “save” them in MyPack Portal.

- Create your PoW through SIS in your MyPack Portal by navigating to Student Homepage > Planning and Enrollment tile > Graduate Plan of Work > Plan of Work tab
  - We recommend that this be completed by the end of your first semester, but it must be done before you can schedule your Preliminary Exam (which is typically by your 4th or 5th semester).
  - Plan of Work Guidelines:
    - Your POW should include the minimum credit hour and course requirements specific to your degree.
    - The only 800-level courses you should include (if applicable) are 893, 895, or 896.
    - No 400-level courses can be included on your POW or counted toward your doctoral degree.

- Create your advisory committee through SIS in your MyPack Portal by going to Student Homepage > Planning and Enrollment tile > Graduate Plan of Work > Committee tab
  - You should know who your “chair” (aka advisor) is by the end of your 1st or 2nd semester.
  - We recommend to create your committee at the same time as your POW, but it must be done before you can schedule your Preliminary Exam (which is typically by your 4th or 5th semester).

Step 2) Submit PoW for approval in MyPack Portal

Step 3) Complete written Preliminary Examination

Students submit the written exam to their committee. If the committee members are satisfied the written prelim exam meets the department requirements (not an evaluation of the merits of the proposal), they will complete an approval form and submit to the MAE Graduate Office. The student will then be able to schedule the oral preliminary exam.

Step 4) Request to schedule the oral portion of the Preliminary Exam – this must be completed no earlier than the end of the second year of graduate study, and no later than one semester (4 months) before the final oral exam.

- Print and complete an Oral Prelim Exam form
  - Located on the Graduate School’s Forms website.
  - Note: Only committee member names need to be listed– their signature is not required.
  - 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.

NOTE: 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.
Step 5) 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 the Doctoral Schedule Oral Final Exam form—located on the Graduate School’s Forms website. You should reserve a conference room with the MAE Front Office and include it on your form. Submit the form to the Graduate Office (3113 EB3) for DGP approval. The Graduate School must receive your exam at least 10 business days prior to your proposed exam date.

Step 6) If you receive an “Unconditional Pass”

- Your thesis must be submitted to the Electronic Thesis Dissertation (ETD) Editor within 5 days after the exam (but absolutely before ETD deadline).
- The ETD Editor will review your thesis then send you formatting and layout corrections.
- Make the necessary formatting corrections then submit your thesis back to the ETD Editor for final approval. Final approval by the ETD editor must occur prior to the Final Error Free ETD Deadline.
- Additional information regarding ETD guidelines is included on page eight (pg. 9) of this handout.

Step 7) Apply to Graduate by the ETD Apply to Graduate Deadline if you have not done so yet

- Additional information regarding applying to graduate is included on page eight (pg. 9) of this handout.

Step 8) 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 regarding graduating 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.
Applying to Graduate (MyPack Portal)

IMPORTANT: All students must Apply to Graduate during their final semester

- A student 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 defense, or enroll in MAE 586 but must be done by “Apply to Graduate Deadline Date” (see below)

After Applying to Graduate, students will receive a Graduation Survey from the Graduate Office. This must be completed before the student’s graduation can be approved.

Electronic Theses and Dissertations (ETD) Information

The ETD Deadlines change each semester it is your responsibility to be aware of (and meet) ETD deadlines. Every master’s student completing a thesis 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.

Additional information can be found on the Graduate School’s Electronic Thesis and Dissertations website. In addition to the ETD deadlines, all PhD students must complete the Doctoral Required Forms.
Semester-by-Semester Program Checklist

PhD Students

First Semester
- Create your plan of work and begin to consider who will be your faculty advisor.

Second Semester
- Identify your faculty advisor and review your PoW with them.
- Consult with your faculty advisor to identify remaining members of your Advisory Committee.
- Submit POW for approval in MyPack Portal by the end of the 2nd semester.

Third and Fourth Semester
- Review your PoW with your faculty advisor at least once.
- With Advisory Committee in place, PhD students can take their preliminary exam as early as their fourth semester (once all lecture courses are completed).

Fifth Semester (or second to last semester)
- Review ETD Deadlines for the term you intend to graduate.
- Complete written prelim examination then schedule the oral prelim exam.
- Complete the oral prelim exam before the end of 5th semester.
  - After receiving a Unconditional Pass, PhD students must wait 4 months to schedule their final exam.

Sixth Semester (or final semester)
- Apply to graduate in MyPack Portal.
- Schedule and perform the final exam—adhering to all applicable ETD deadlines.
Direct-to-PhD Students

First Semester
☐ Create your plan of work and begin to consider who will be your faculty advisor.

Second Semester
☐ Identify your faculty advisor and discuss your PoW with them.
☐ Consult with your faculty advisor to identify remaining members of your Advisory Committee.
☐ Submit POW for approval in MyPack Portal by the end of the 2nd semester.
☐ Take your qualifying exam by the end of the 2nd semester (preferable)

Third Semester
☐ MUST take your qualifying exam by the end of the 3rd semester

Fourth Semester
☐ Review and update your PoW as necessary

Fifth and Sixth Semester
☐ Review and update your PoW as necessary
☐ With Advisory Committee in place, PhD students can take their 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.
☐ Complete written prelim examination then schedule the oral prelim exam.
☐ Complete the oral prelim exam before the end of this semester.
   ☐ After receiving a Unconditional Pass, PhD students must wait 4 months to schedule their final exam.

Eighth Semester (or final semester)
☐ Apply to graduate in MyPack Portal.
☐ Schedule and perform the final exam—adhering to all applicable ETD deadlines.