

GRADUATE STUDENT HANDBOOK
DEPARTMENT OF MECHANICAL AND
AEROSPACE ENGINEERING
2022 to 2023



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Foreword

This handbook is a general guide for graduate students in the Department of Mechanical and Aerospace Engineering. It outlines the rules and procedures of the Master of Science and Doctor of Philosophy programs in the department. This information is not intended to be a substitute for the *Graduate Bulletin*, which is the authoritative source of information for all graduate students. This guide will be updated periodically in response to changes as they occur. If you have any questions or suggestions, please contact me.

We wish you a successful stay in the graduate program.

Dr. Jesse B. Hoagg
Director of Graduate Studies

and

Dr. Michael Renfro
Chair and Professor

<https://www.engr.uky.edu/research-faculty/departments/mechanical-and-aerospace-engineering>

MECHANICAL AND AEROSPACE ENGINEERING

GRADUATE STUDENT HANDBOOK

Introduction

The Department of Mechanical and Aerospace Engineering (MAE) at the University of Kentucky provides an intellectually challenging environment in which to pursue advanced studies and engage in research. The Department offers programs of study leading to the Master of Science (MS) degree in mechanical engineering (ME), MS degree in aerospace engineering (AER), Doctor of Philosophy (PhD) degree in ME, and PhD degree in AER.

Financial assistance is available to many qualified applicants in the form of graduate teaching assistantships, research assistantships, or fellowships. Stipends vary depending on the student's program level and type of support.

Graduate students work closely with faculty who are recognized authorities in their disciplines, and many of the department's research projects are at the forefront of technology in their respective fields.

General Procedures

Admission Requirements

Applicants seeking admission to the graduate programs in the Department of Mechanical and Aerospace Engineering (MAE) as regular students must have an awarded baccalaureate degree. Admission in the MAE graduate programs normally require a bachelor's degree in engineering (not necessarily in mechanical or aerospace engineering) and a grade point average (GPA) of 3.0/4.0 or 70% on all graduate and undergraduate work, as well as Graduate Record Examination (GRE) scores of at least 300 (new scoring system) for the combined Quantitative and Verbal sections (with at least 160 on the quantitative section) and 3.5 for the Analytical section. An undergraduate degree in mathematics, chemistry, or physics combined with a strong interest in engineering topics may be suitable preparation when certain required undergraduate courses are taken. See Appendix A for further details. Exceptions to these requirements may be made by the Director of Graduate Studies if other persuasive evidence of the student's potential for success is available.

All international students, except those with a degree from a U.S. institution, must have a minimum score of 550 (paper), 213 (computer), or 79 (Internet) on the Test of English as a Foreign Language (TOEFL), or an IELTS score of 6.5.

A student granted admission to the Master of Science (MS) program in mechanical engineering (ME) or the MS program in aerospace engineering (AER) is an MS candidate for that degree. A student granted admission to a Doctor of Philosophy (PhD) program in ME or the PhD program in AER is not a PhD candidate for that degree until the student finishes all coursework and passes the Oral Qualifying Exam. The Oral Qualifying Exam is administered by the Graduate School, and you can register for it here: <http://gradschool.uky.edu/degree-forms>.

University Scholars Program Requirements (Combined BS/MS Degree, or Combined BS/PhD Degree)

The University Scholars Program (USP) offers highly motivated University of Kentucky MAE undergraduates the opportunity to integrate undergraduate and graduate courses in a single continuous program culminating in a bachelor's degree as well as MS or PhD degree. Students begin the USP during the junior or senior year of their undergraduate program.

Applicants must have completed a minimum of 90 credit hours of work towards the bachelor's degree or be eligible for senior standing in the semester they are admitted to the program.

Applicants must have a GPA of 3.5 in mechanical or aerospace engineering courses and a 3.2 overall. Applicants must fill out University Scholars form, notify their advisor of their intentions, and get approval from the Director of Graduate Studies (DGS) and the Dean of Undergraduate Studies. Additionally, applicants must apply to the Graduate School and upload their form with their application. Their application must be the formal and complete graduate school application. Admission decisions will be made by the Dean of the Graduate School or his/her appointee.

Note: Once a student reaches the hours necessary to earn undergraduate degree, all classes will be charged as Graduate School tuition.

Twelve (12) credit hours of graduate work will count for both graduate and undergraduate programs. Requirements for the BS degree are unchanged.

Students may take no more than 16 credit hours per semester unless one or more courses is taken as an audit, or otherwise with a pass/fail grade, except by recommendation of the DGS and approval of the Dean of the Graduate School. Students must have both undergraduate and graduate advisors. Deadline to apply for Fall semester is April 30th. Deadline for Spring semester is November 30th. Application is here:

<http://gradschool.uky.edu/studentforms>

Post-Baccalaureate Studies

This special graduate status applies to students who satisfy some of the following:

- *Students have received a baccalaureate degree from an accredited college or university;*
- *Students wish to pursue graduate study without a degree objective;*
- *Students have not fulfilled entrance requirements of the UK Graduate School;*
- *Students are UK resident students.*

Post-baccalaureate status is not available for nonresident students or International applicants.

Students in post-baccalaureate status may take courses for graduate credit but may apply no more than nine (9) credit hours with a grade of A or B earned in the post-baccalaureate status to any graduate degree program at UK. All transfers of credit hours to the ME graduate program must be approved by the DGS and the Dean of the Graduate School.

Post-baccalaureate status is not a form of probationary admission to a degree-granting graduate program. Post-baccalaureate students who wish to apply for a MAE graduate program must satisfy the standard admission requirements for the Department of Mechanical and Aerospace Engineering and the Graduate School.

Activities for New Students & Requirements to Plan For

Orientations

All MAE students are required to attend the MAE departmental orientation at the beginning of every Fall semester. All new graduate students are encouraged to attend orientation events organized by the Graduate School (unless required due to receiving Teaching Assistantship).

Graduate Student Profile

All new MAE graduate students are required to submit a Graduate Student Profile form, which can be found at:

<https://www.engr.uky.edu/research-faculty/departments/mechanical-and-aerospace-engineering/graduate/resources-current-graduate-students>

Graduate Student Profile must be submitted by the end of a student's second week on campus to the Graduate Student Coordinator, who maintains profiles of MAE graduate students. This ensures the department has current contact information. An updated Graduate Student Profile form should be submitted to the Graduate Student Coordinator immediately if there are any changes and updates to the contact information or graduate status.

Assignment of a Faculty Advisor

All new Mechanical and Aerospace Engineering students are required to secure an advisor. Students are encouraged to meet with faculty in their areas of interest and select an advisor within the first 4 weeks of their first semester, **and no later than the end of the first semester**. The DGS serves as the advisor to new graduate students until each student identifies a permanent advisor. Students unable to find an advisor are required to report to the DGS.

Program Planning & Plan of Study

New students should consult with the DGS or their faculty advisor to discuss their individual Plan of Study, which can be found at:

<https://www.engr.uky.edu/research-faculty/departments/mechanical-and-aerospace-engineering/graduate/resources-current-graduate-students>

The Plan of Study supports the educational objectives of the student. It is critical that every student be fully aware of university and departmental degree requirements. An initial Plan of Study may be subject to future modifications, but any modifications to the Plan of Study must be submitted the first semester to, and approved by, the student's advisor and the DGS. Only if changes are made to the Plan of Study should a new Plan of Study be submitted after the first Plan of Study submission.

Classification and Registration

New and readmitted graduate students register using their online myUK account during the Add/Drop window in the week prior to the start of classes. Refer to the Registrar's website for the appropriate dates each semester:

<http://www.uky.edu/registrar>

Continuing students should enroll during the Priority registration period. For students who fail to do so, including new and readmitted students who applied after the early registration deadline, registration must be done during the first week of classes.

Office Space

Office space is available on a limited basis to MS Option A and PhD graduate students. Contact your faculty advisor regarding available spaces. Priority for the limited office space will be given to those engaged in research projects, PhD students, and teaching assistants.

Keys

Graduate students frequently require keys for access to University offices, laboratories and buildings. Requests for keys are initiated by completing a *Key Request* form, which can be found at:

<https://www.engr.uky.edu/research-faculty/departments/mechanical-and-aerospace-engineering/about/facultystaff-resources>

The student's advisor must certify the validity of each key request. Building entrance access is limited to Graduate students. All keys must be returned to the Graduate Student Coordinator when students finish their need and/or leave the university.

Activities for Continuing Graduate Students

Application for Degree

Students exploring the possibility of graduating need to apply for a degree to be eligible. The Application for a Degree is a Graduate School requirement. To be eligible for a degree, graduate students must file a *Graduate School Application for Degree* using their myUK account. The application deadlines are:

- within 30 days after the beginning of the Fall or Spring Semester in which he/she expects to graduate,
- or within 15 days after the beginning of summer session.

Further instructions can be found at the Graduate School website:

<http://gradschool.uky.edu/studentforms>

For specific dates, see:

<http://www.uky.edu/registrar/content/academic-calendar> (See also Graduate Student Coordinator for details)

Time Limits for Graduate Degrees

The Graduate School establishes policies for time limits for attaining a graduate degree. Masters Candidates: Students enrolled in master's/specialist programs in Fall 2005 and beyond have 6 years to complete all requirements of the degree, but extensions up to an additional 4 years may be requested for a total of 10 years.

- Extensions up to 2 years may be approved by the Dean of the Graduate School or designate. Requests for extensions longer than 2 years must be considered by the Graduate Council.

Requests should be made to the Director of Graduate Studies after approval by advisor. The Director of Graduate Studies will then submit the request to the Senior Associate Dean of the Graduate School at: Brian.Jackson@uky.edu

Further details regarding time limits can be in the Graduate School bulletin found here:

<http://gradschool.uky.edu/graduate-school-bulletin>

Leaving the Department

All students (those leaving the department prior to finishing a program as well as those graduating) must conduct an exit interview before leaving the Department. *The Graduate Student Exit Interview form* must be signed by the thesis advisor and the DGS before departure. Departing students must return all key(s) for offices and buildings, clear office/lab spaces, return books/solution manuals, and file a UK employee separation form. The Department will keep a profile of all alumni to maintain future contact.

Full-Time Status

A full-time graduate student must be enrolled in 9 or more credit hours of coursework. Graduate students are expected to remain in full-time status until their course and/or residence requirements are met. Note: Going below full-time status will be problematic for international students due to visa requirements. Always check with your advisor, the International Center, and the DGS before under enrolling. Under enrollment can lead to serious consequences.

Summer Enrollment

Students are expected to conduct full-time research during the summer. ME and AER graduate courses are generally not offered during this period.

Incomplete Grades

The Graduate School requires that all incomplete grades must be removed from the student's record before he/she may schedule the final examination or be awarded a degree. Removal may be accomplished in 2 ways:

- complete requirements for all such courses permitting the instructor(s) to issue official grade change;
- provide the Dean of the Graduate School with letters from the student's advisor or special committee Chair, and the DGS, stating that the incomplete course(s) is (are) no longer part of the student's *Plan of Study*.

An incomplete grade "I" will automatically be changed to a failing grade "E" if not removed within one calendar year from the date the incomplete grade was assigned.

Repeat Options

A student may repeat a graduate course and count only the second grade as part of the graduate grade point average. This action will be initiated only by petition using this form:

<http://gradschool.uky.edu/sites/gradschool.uky.edu/files/Forms/StudentForms/RepeatOption.pdf>

The Repeat Option Form is held in the Graduate School and the change of grade is recorded when the course has been completed for the second time. A request to exercise the repeat option must be made prior to graduation from the program. The repeat option cannot be used to remove an "E" grade assigned as the result of an academic offence.

Scholastic Probation

Students will be placed on scholastic probation if they have completed 12 or more credit hours of graduate coursework with a cumulative GPA of less than 3.0. Students have one full-term semester, or the equivalent (9 hours), to remove the scholastic probation by attaining a 3.0 cumulative GPA. If probation is not removed after one semester, or 9 credit hours, the student will be dismissed from the Graduate School. Students on academic probation are ineligible for any financial support from the University (TA, RA, fellowship, scholarship). Note: Students are responsible for letting their advisor and the DGS know when they fall below the required GPA if they are receiving departmental support.

Review and Dismissal

Progress of each graduate student will be reviewed by the DGS, in consultation with the Graduate Studies Committee and the student's academic advisor, once each academic year, or more often for students on scholastic probation. If a student does not make satisfactory progress in coursework and/or research, that student shall be dismissed from the MAE graduate programs.

The MAE Graduate program will assess the progress of PhD students. Each academic year students will submit an Assessment form (Appendix G), CV, Plan of Study, and 2-4 page summary of progress to their advisor/advisory committee. The advisor/advisory committee will attach their comments on each PhD student and submit to the DGS. All materials should be received by the DGS no later than May 15th. If a student receives an unsatisfactory assessment, that student will have 6 months to correct issues and resubmit another assessment. After three consecutive unsatisfactory assessments, that student will be dismissed from the MAE Graduate program.

Dismissal is effective at the end of the semester in which the review is made. The student will be notified in writing of potential dismissal.

The student's Advisory Committee shall be consulted by the DGS before a dismissal decision is made.

Departmental Seminars

To supplement the student's formal coursework and research experience, the Department of Mechanical and Aerospace Engineering, in conjunction with the Graduate School, offers the William Maxwell Reed Seminar series.

The MAE requires students to register for ME 799 (Mechanical Engineering Graduate Seminar) or AER 799 (Aerospace Engineering Graduate Seminar). ME/AER 799 requires that each student write one page for each seminar attended and upload a pdf copy to the course Canvas site.

MS Students: Required to complete 2 semesters of the ME/AER 799 seminar course.

PhD Students: Required to complete 4 semesters of the ME/AER 799 seminar course. A student with a previous MS degree is required to complete 2 semesters of the ME/AER 799 seminar course.

Seminar attendance for students not enrolled in ME/AER 799 is highly encouraged. There are typically 6 and 8 seminars each semester. Seminars are typically held on Friday afternoons from 3:00 PM to 4:00 PM.

College of Engineering Seminars (Safety Training)

All Graduate students are required to attend scheduled safety training seminars that are provided by the safety committee of the College of Engineering. These typically are offered each Fall semester.

The Master of Science Degrees

The Department of Mechanical and Aerospace Engineering offers an MS degree in ME and an MS degree in AER. There are 2 options for fulfilling the requirements for these MS degrees; these are the MS Option A and MS Option B. Students by default are admitted directly into Option A. Students must seek approval from the DGS to be admitted to the Option B program.

MS in Mechanical Engineering Option A (Thesis Plan)

MS in ME Option A requires a minimum of 30 credit hours and a thesis. The thesis must be supervised by a member of the Graduate Faculty.

Course Requirements:

- 1) 30 credit hours required for a MS degree, where 6 credit hours of MS residency (ME 768) is suggested. Research courses (including ME 790) do not count toward the required credit hours.*
- 2) At least 6 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list, where at least 3 credit hours are from courses with prefixes MA or STA. See Appendix F for further information.*
- 3) At least 12 credit hours at the 600-level or greater (ME 790 and ME 768 is excluded).*
- 4) A maximum of 6 credit hours of ME 780, and a maximum of 6 credit hours of ME 768 may be included.*
- 5) At least 16 credit hours from courses with the prefix ME excluding ME 768.*
- 6) Students must complete 2 semesters of ME 799 (Graduate Seminar).*

The Graduate School requires that two-thirds of all required coursework (excluding ME 768) must be in Mechanical Engineering. The DGS may solicit approval from the Graduate School on courses from another department related to the student's major area if approved by student's advisor and the DGS.

Registration in ME 748 Masters Thesis Research is limited to MS Option A students who have completed all course requirements. ME 748 is a zero (0) credit course that guarantees that a student is considered full-time for the purposes of student financial aid, loan deferments, insurance coverage, and visa status. The DGS must certify that the student is working ½ time (i.e., 20 hours per week) on the thesis project. Registration in ME 748 is limited to a maximum of six (6) semesters (not counting summer terms). First time registration requires advisor approval prior to enrollment.

MS Option A students must develop a thesis under the direction of a full or an associate member of the Graduate Faculty. It must be approved by the thesis director and advisory committee, the DGS, and the Graduate School. The thesis must conform with instructions prepared by the Graduate School found here:

<http://gradschool.uky.edu/thesis-dissertation-preparation>

Option A students must submit a thesis in partial fulfillment of the degree program. A draft of this thesis must be submitted to the advisor no less than one month prior to the defense and no less than 2 weeks prior to the defense to the rest of the advisory committee. The final examination will be automatically canceled if these deadlines are not met. The Final Examination for an MS Option A student will primarily constitute a defense of the thesis research as represented in the thesis and provided to the advisory committee.

Since the written thesis represents important documentation of completed research, any MS student participating in a funded research project, or receiving funding from the department in the form of an assistantship or scholarship will be required to enroll in the MS Option A and to complete a thesis as part of their degree.

The thesis in its final form must be received in the Graduate School within 60 days of the Final Examination. Note: If students take final examination late in the semester, they will have less than 60 days. Theses must be presented to and accepted in the Graduate School by the last day of the semester if a student plans to graduate that semester.

MS in Mechanical Engineering Option B (Non-Thesis Plan)

MS in ME Option B requires a minimum of 30 credit hours of coursework. A final examination administered by the students Advisory Committee must be passed to complete degree requirements. MS Option B students must have a faculty advisor throughout their program of study. MS Option B students are not eligible for TA or RA Support.

Course Requirements:

- 1) 30 credit hours required for a MS degree. MS residency (ME 768) and research courses (including ME 790) do not count toward the required credit hours.*
- 2) At least 6 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list, where at least 3 credit hours are from courses with prefixes MA or STA. See Appendix F for further information.*
- 3) At least 12 credit hours at the 600-level or greater (ME 790 and ME 768 is excluded).*
- 4) A maximum of 6 credit hours of ME 780 may be included and is recommended.*
- 5) At least 20 credit hours from courses with the prefix ME.*
- 6) Students must complete 2 semesters of ME 799 (Graduate Seminar).*

The Graduate School requires two-thirds of all required coursework (20 out of 30 credits) must be in Mechanical Engineering. The DGS may solicit approval from the Graduate School on courses from another department related to the student's major area if approved by student's advisor and the DGS.

MS in Aerospace Engineering Option A (Thesis Plan)

MS in AER Option A requires a minimum of 30 credit hours and a thesis. The thesis must be supervised by a member of the Graduate Faculty.

Course Requirements:

- 1) 30 credit hours required for a MS degree, where 6 credit hours of MS residency (AER 768) is suggested. Research courses (including AER 790) do not count toward the required credit hours.*
- 2) At least 6 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list, where at least 3 credit hours are from courses with prefixes MA or STA. See Appendix F for further information.*
- 3) At least 12 credit hours at the 600-level or greater (AER 790 and AER 768 is excluded).*
- 4) A maximum of 6 credit hours of AER 780, and a maximum of 6 credit hours of AER 768 may be included.*
- 5) At least 16 credit hours from courses with the prefix AER excluding ME 768.*
- 6) Students must complete 2 semesters of AER 799 (Graduate Seminar).*

The Graduate School requires that two-thirds of all required coursework (excluding AER 768) must be in Aerospace Engineering. The DGS may solicit approval from the Graduate School on courses from another department related to the student's major area if approved by student's advisor and the DGS.

Registration in AER 748 Masters Thesis Research is limited to MS Option A students who have completed all course requirements. AER 748 is a zero (0) credit course that guarantees that a student is considered full-time for the purposes of student financial aid, loan deferments, insurance coverage, and visa status. The DGS must certify that the student is working ½ time (i.e., 20 hours per week) on the thesis project. Registration in AER 748 is limited to a maximum of six (6) semesters (not counting summer terms). First time registration requires advisor approval prior to enrollment.

MS Option A students must develop a thesis under the direction of a full or an associate member of the Graduate Faculty. It must be approved by the thesis director and advisory committee, the DGS, and the Graduate School. The thesis must conform with instructions prepared by the Graduate School found here:

<http://gradschool.uky.edu/thesis-dissertation-preparation>

Option A students must submit a thesis in partial fulfillment of the degree program. A draft of this thesis must be submitted to the advisor no less than one month prior to the defense and no less than 2 weeks prior to the defense to the rest of the advisory committee. The final examination will be automatically canceled if these deadlines are not met. The Final Examination for an MS Option A student will primarily constitute a

defense of the thesis research as represented in the thesis and provided to the advisory committee.

Since the written thesis represents important documentation of completed research, any MS student participating in a funded research project, or receiving funding from the department in the form of an assistantship or scholarship will be required to enroll in the MS Option A and to complete a thesis as part of their degree.

The thesis in its final form must be received in the Graduate School within 60 days of the Final Examination. Note: If students take final examination late in the semester, they will have less than 60 days. Theses must be presented to and accepted in the Graduate School by the last day of the semester if a student plans to graduate that semester.

MS in Aerospace Engineering Option B (Non-Thesis Plan)

MS in AER Option B requires a minimum of 30 credit hours of coursework. A final examination administered by the students Advisory Committee must be passed to complete degree requirements. MS Option B students must have a faculty advisor throughout their program of study. MS Option B students are not eligible for TA or RA Support.

Course Requirements:

- 1) 30 credit hours required for a MS degree. MS residency (AER 768) and research courses (including AER 790) do not count toward the required credit hours.*
- 2) At least 6 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list, where at least 3 credit hours are from courses with prefixes MA or STA. See Appendix F for further information.*
- 3) At least 12 credit hours at the 600-level or greater (AER 790 and AER 768 is excluded).*
- 4) A maximum of 6 credit hours of AER 780 may be included and is recommended.*
- 5) At least 20 credit hours from courses with the prefix AER.*
- 6) Students must complete 2 semesters of AER 799 (Graduate Seminar).*

The Graduate School requires two-thirds of all required coursework (20 out of 30 credits) must be in Aerospace Engineering. The DGS may solicit approval from the Graduate School on courses from another department related to the student's major area if approved by student's advisor and the DGS.

Transfer of Program

MS students may transfer to a PhD program upon recommendation of a faculty member. To initiate this transfer, a student must complete a Transfer of Program request and reapply to the Graduate School for the PhD program.

Students may transfer from the MS Option B to the MS Option A or the PhD to the MS Option A programs upon recommendation of their advisor. To initiate this transfer, a student must complete a Transfer of Program request.

Students may only transfer from the MS Option A to the MS Option B or PhD to the MS Option B program upon the approval of the ME Department Graduate Studies Committee. The student must submit a written request to the DGS. Such requests are only granted in exceptional cases. Students that have participated in funded research projects and/or received funding through an assistantship or scholarship will be required to remain in the thesis program except for circumstances where the Graduate Studies Committee, at its sole discretion, determines that a thesis cannot be completed.

A. Transfer of Credits

The Graduate School allows for some transfer of credit for accepted MS or PhD students. Transfer of credit may not be requested by students prior to acceptance into the MS or PhD graduate program. Additionally, transfer of credit, if approved, is limited to a total of 9 credit hours or 25% of the regular course degree requirements. Students wanting a transfer of credit must have the permission of the DGS, and the Senior Associate Dean of the Graduate School makes the final decision. The request form for a transfer of credit with additional rules is found here:

<http://gradschool.uky.edu/studentforms>

Additionally, more details on this and the limitations on what credit is typically approved for transfer can be found in the Graduate Student Bulletin.

B. Advisory Committee

MS students must select a Faculty advisor within the first semester and form an advisory committee within the first year of enrolling into the MAE graduate program. Policies regarding the makeup of the advisory committee is set forth by the Graduate School bulletin here:

<http://gradschool.uky.edu/graduate-school-bulletin>

The Examining committee must consist of at least three qualified faculty members. At least two members (including the Chair or Co-Chair) must be members of the Graduate Faculty, and at least one of the two must be a Full member of the Graduate faculty. It is expected that at least two members of the committee will be from the student's program/department.

C. Publication Requirements

MS Option A students must have submitted at least one conference or journal paper. Students will not be permitted to sit for their Final Examination unless this requirement has been met.

D. Final Examination

MS Option B students are not required to prepare a thesis. MS Option B students' final examination will cover their general knowledge of the mechanical or aerospace engineering field. The format of the Option B final examination should follow the

guidelines found in Appendix C and must be approved in advance by the examination committee.

Both MS Option A and MS Option B students must submit the Request for Final Master's Degree Examination Form to schedule their final examination. The instructions and form is located here:

<http://gradschool.uky.edu/degree-forms>

The Request for Final Master's Degree Examination must be submitted to the Graduate School at least 2 weeks prior to the exam date. A request for Final Exam cannot be processed until the student's advisory committee has been formed and approved by the DGS and the Graduate School via the same link above.

In order to be eligible for the Final Exam, students must have completed all coursework prior to the final exam. Students with missing grades or "I" grades on their transcript are not eligible to sit for the final examination. Students on academic probation are not eligible to sit for the final examination.

Final examinations must be conducted no later than 8 days before the last day of classes for the degree to be awarded at the end of the term. Students are responsible for checking the University term dates and deadlines and the Graduate School requirements for precise deadlines on final examinations. Final exams are open to the public. Refreshments in the final examination are strongly discouraged.

The Doctor of Philosophy Degrees

The Department of Mechanical and Aerospace Engineering offers a PhD degree in ME and a PhD degree in AER. These PhD degrees are research degrees granted on the basis of broad knowledge of mechanical or aerospace engineering and in-depth study in a specific area leading to a dissertation reflecting original work by the doctoral candidate.

PhD in Mechanical Engineering

Requirements for Students without an MS Degree in Mechanical or Aerospace Engineering

- 36 credit hours required for a PhD degree. Residency (ME 767) and research courses (including ME 790) do not count toward the required credit hours.
- At least 6 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list, where at least 3 credit hours are from courses with prefixes MA or STA. See Appendix F for further information.
- At least 18 credit hours at the 600-level or greater (ME 790 is excluded, and only 3 credit hours of ME 780 may be included).
- At least 18 credit hours from courses with the prefix ME.
- Students must complete 4 semesters of ME 799 (Graduate Seminar).

Requirements for Students with an MS Degree in Mechanical or Aerospace Engineering

- 18 credit hours required for a PhD degree. Residency and research courses (including ME 790) do not count toward the required credit hours.
- At least 3 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list. See Appendix F for further information.
- At least 9 credit hours at the 600-level or greater (ME 790 is excluded, and only 3 credit hours of ME 780 may be included).
- At least 9 credit hours from courses with the prefix ME.
- Students must complete 2 semesters of ME 799 (Graduate Seminar).

Requirements for Students with an MS Degree in another discipline

Up to 18 credit hours may be waived for the PhD degree course degree requirement upon the approval of student's advisor, DGS and graduate school. The student's PhD committee determines the course requirements with the approval of DGS.

- The total number of credit hours the student must take for a PhD will be 36 minus the number of credit hours waived by the department. Residency and research courses (including ME 790) do not count toward the required credit hours.

- Math requirement:
 - i. If at least 3 credit hours were waived for a student from an acceptable math course, the student must take at least an additional 3 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list.
 - ii. If no math courses were waived for a student, the student must take at least 6 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list, where at least 3 credit hours are from courses with prefixes MA or STA.
- At least 50% of the required credit hours must be at the 600-level or greater (ME 790 is excluded, and only 3 credit hours of ME 780 may be included).
- At least 50% of the required credit hours must be from courses with the prefix ME.
- Students must complete 2 semesters of ME 799 (Graduate Seminar)
- Independent work, taken as part of ME 780, cannot be included in the required coursework when the course material is related to the student's dissertation topic.
- Independent course projects (whether taken as ME 780 or ME 790) require a course syllabus (including outline of topics and grade requirements) provided to the DGS for approval prior to enrolling.

PhD in Aerospace Engineering

Requirements for Students without an MS Degree in Mechanical or Aerospace Engineering

- 36 credit hours required for a PhD degree. Residency (AER 767) and research courses (including AER 790) do not count toward the required credit hours.
- At least 6 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list, where at least 3 credit hours are from courses with prefixes MA or STA. See Appendix F for further information.
- At least 18 credit hours at the 600-level or greater (AER 790 is excluded, and only 3 credit hours of AER 780 may be included).
- At least 18 credit hours from courses with the prefix AER.
- Students must complete 4 semesters of AER 799 (Graduate Seminar).

Requirements for Students with an MS Degree in Mechanical or Aerospace Engineering

- 18 credit hours required for a PhD degree. Residency and research courses (including AER 790) do not count toward the required credit hours.

- At least 3 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list. See Appendix F for further information.
- At least 9 credit hours at the 600-level or greater (AER 790 is excluded, and only 3 credit hours of AER 780 may be included).
- At least 9 credit hours from courses with the prefix AER.
- Students must complete 2 semesters of AER 799 (Graduate Seminar).

Requirements for Students with an MS Degree in another discipline

Up to 18 credit hours may be waived for the PhD degree course degree requirement upon the approval of student's advisor, DGS and graduate school. The student's PhD committee determines the course requirements with the approval of DGS.

- The total number of credit hours the student must take for a PhD will be 36 minus the number of credit hours waived by the department. Residency and research courses (including AER 790) do not count toward the required credit hours.
- Math requirement:
 - iii. If at least 3 credit hours were waived for a student from an acceptable math course, the student must take at least an additional 3 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list.
 - iv. If no math courses were waived for a student, the student must take at least 6 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list, where at least 3 credit hours are from courses with prefixes MA or STA.
- At least 50% of the required credit hours must be at the 600-level or greater (AER 790 is excluded, and only 3 credit hours of AER 780 may be included).
- At least 50% of the required credit hours must be from courses with the prefix AER.
- Students must complete 2 semesters of AER 799 (Graduate Seminar)
- Independent work, taken as part of AER 780, cannot be included in the required coursework when the course material is related to the student's dissertation topic.
- Independent course projects (whether taken as AER 780 or AER 790) require a course syllabus (including outline of topics and grade requirements) provided to the DGS for approval prior to enrolling.

Advisor & Advisory Committee

Each student's program is guided by a major professor and an advisory committee throughout the student's graduate career. Their functions are to provide continuity of

direction and counsel and to instill intellectual stimulation throughout the entire doctoral program. **PhD students are required to select an advisor within the first semester (or earlier).** Students should also with the help of their advisor select their advisory committee during the second semester and no later than the completion of 18 credit hours of graduate work. The Advisory Committee provides advice to the student and sets specific program requirements (within applicable Department, Graduate School, and University regulations) which the student must satisfy. The Graduate School determines the regulations concerning the makeup of the advisory committee. The rules for the advisory committee are found here in the Graduate School Bulletin:

<http://gradschool.uky.edu/graduate-school-bulletin>

Students are required to submit their advisory committee for DGS and Graduate School approval here. This is required before any exams can be scheduled:

<http://gradschool.uky.edu/degree-forms>

Residency & Post Residency Requirements

The Graduate School requires students fulfill residency requirement within the doctoral program in order to encourage students to experience contact with the academic community and the intellectual environment that characterizes a university. Students are required to complete all required credit hours of coursework prior to the PhD Oral Qualifying examination, and at least one year (2 semesters) of post-qualifying residency (ME 767, AER 767). Please refer to the Graduate School Bulletin for Residency/Post Residency requirements. An awarded MS degree from the University of Kentucky or another accredited school may satisfy up to 18 credit hours of the 36 credit hour pre-qualifying requirement. Such requests should be made by the Faculty advisor to the DGS and then to the Senior Associate Dean of the Graduate School.

Written Qualification Examination

PhD students are required to take and pass the PhD Written Qualification Examination which constitutes the written portion of the Qualifying Examination required by the Graduate School. This written exam tests knowledge in specific required undergraduate topic areas, but exams will be sufficiently difficult to test mastery of these concepts.

Students have up to 2 seatings during which they must pass one written exam in mathematics and two additional exams in other topic areas. The two additional topic area exams must be selected from the seven listed in Appendix D. Seatings will occur twice a year: during the first full week in February (spring exams) and during the first full week after the Labor Day holiday (fall exams). Once a student passes an exam on a topic, they do not need to retake it. No student will be permitted to take exams in more than 2 seatings. Failure to pass the math exam and two additional exams by the end of the student's second seating will result in the student's dismissal from the MAE doctoral programs. Failure to complete the Written Qualification Exam within the specified time limit as outlined in Appendix D will result in the student's dismissal from the MAE doctoral programs.

Exams and exam syllabi are prepared by the corresponding qualifying exam topic area committees; exams are graded by the same topic area committees. Detailed information on the written qualifying exam procedures can be found in Appendix D.

Oral Qualifying Examination

PhD students are required to take and pass the PhD Oral Qualifying Examination. This exam inspects the soundness of the students proposed doctoral dissertation research plan. A prospectus prepared by the student and submitted to the student's Advisory Committee is required at least 2 weeks in advance of the exam. Only those who have passed the written qualifying exam and have satisfied all course requirements may sit for this exam. The Graduate School provides the regulations for this exam and the link for scheduling is here:

<http://gradschool.uky.edu/degree-forms>

Publication Requirement

PhD students are expected to have submitted at least three (3) papers to archival journals, with at least one (1) having been accepted before sitting in their final examination.

Final Examination

This exam is the dissertation defense and is mandated by the Graduate School and all Graduate School regulations regarding this exam must be met. Graduate School regulations concerning the final exam are included in the Graduate School bulletin here:

<http://gradschool.uky.edu/graduate-school-bulletin>

Students planning on taking the PhD final examination are required to notify the Graduate School a minimum of eight (8) weeks prior to the intended date here:

<http://gradschool.uky.edu/degree-forms>

During that eight week period, the Graduate School will appoint an Outside Examiner from an outside department on campus. Following the appointment of the Outside Examiner, students may set the final exam date at least two weeks prior to the examination via the same link:

<http://gradschool.uky.edu/degree-forms>

Students are expected to provide delivery of the complete dissertation to the students advisor four (4) weeks prior, and to the committee a minimum of two weeks prior. The Graduate School will send announcements to of the examination to each advisory committee member and to the PhD candidate.

The final exam is open to the public and must take place while classes are in official session. They may not be scheduled between semesters or between the end of Summer Session II and the beginning of the Fall semester. Students may not sit for the final exam until all remaining "I" grades in credit bearing courses have been assigned letter grades. PhD students must be enrolled to sit for the exam.

The Graduate Student Coordinator, working with the DGS and the Graduate School, will provide the Final Exam card prior to the beginning of the Final Examination. If the examination card has not been received, the Committee Chair or DGS must call the Associate Dean of the Graduate School to determine whether the examination may proceed.

The Final Examination may not begin until all voting members of the Advisory Committee are present. The names of the voting members will be on the Final Examination card; names of non-voting members will not be on the card. All committee members must be present for the entire examination process. If a Committee member is in contact via electronic means, such as pre-approved telephone or interactive video (ITV) conference, and the connection is lost, the examination process must stop until the connection is reestablished.

The Final Examination may be cancelled at any time prior to its official start for substantive reasons with no permanent consequences for the student. The student has not failed the examination in this case because the exam had never begun. Substantive reasons for an exam cancellation can include a missing advisory committee member, a sudden difficulty in the candidate's personal life that may affect examination preparation and/or performance, or a late opinion on the part of the one or more committee members that the dissertation is not ready to defend. In such cases, the committee should discuss the issues at hand and reach a decision on whether to hold the examination. The candidate also has the right to cancel the Final Examination *prior* to its start. If the examination is cancelled, it must be formally rescheduled with the Graduate School with a minimum 2 week interval.

The Final Examination must be completed once it has begun. The committee vote must be recorded on the Examination card, and scores entered on the score sheets, with the signatures of all voting members. There are only two possible outcomes: Pass or Fail, and these outcomes must be consistent with the score appearing on the score sheet for each voting member. The Examination may not be suspended to permit the candidate to correct deficiencies. The only suspensions that are permitted are short breaks to allow the candidate or committee to refresh themselves. No refreshments beyond bottled water will be permitted in the exam without pre-approval by the DGS.

Submission of the Dissertation

The final copy of the dissertation is prepared and submitted to the Graduate School after the Final Examination is passed and all committee requirements have been met.

Instructions for the Preparation of Theses and Dissertations on the Graduate School website provides the requirements for dissertation preparation and submittal:

<http://gradschool.uky.edu/thesis-dissertation-preparation>

The dissertation must be received by the Graduate School within 60 days of the Final Examination. The candidate must be re-examined if this deadline is not met. The dissertation must be accepted by the Graduate School by the last class day of the semester in which the candidate will graduate.

PhD candidates must fill out and submit an ETD form for their dissertation. Please follow the guidelines and find the form here:

http://gradschool.uky.edu/sites/gradschool.uky.edu/files/Forms/StudentForms/ETDApprovalForm_0.pdf

Departmental Fellowships

Harper Industries Achievement Fellowship

Harper Industries Achievement Fellowships are available to offset some of the first year tuition for new University Scholars in the MAE graduate programs. The award is \$1,500.00 for one year, depending on the availability of the funds.

All students who apply to the University Scholars Program in the Mechanical and Aerospace Engineering Department at UK are eligible for consideration. Candidates must have an undergraduate cumulative GPA of 3.5 or higher.

Harper Industries Graduate Fellowship

The Harper Industries Fellowship provides up to \$18,000 for 12 months to an outstanding student applying to the UK MAE Graduate programs (PhD or MS Option A), depending on the availability of funds. This fellowship does allow the student to obtain teaching experience if they so desire. Any new student who has applied to the Graduate program in the UK MAE Department may be nominated. Candidates must have an undergraduate cumulative GPA of 3.5 or higher. Likewise, candidates must have a GPA of 3.5 or higher for any graduate work.

Candidates for the Harper Industries Graduate Fellowship are self-nominated. Eligible students must submit a letter of self-nomination to the DGS. Nomination letters, graduate application, and other supporting documents must be received by the March 1st deadline. Nomination letters should include a resume and cover letter that lists special qualifications (e.g., previous scholarships, honors and awards, service, or volunteer activities, publications).

TVA Graduate Fellowship

Students interesting in applying for a TVA Fellowship should contact either the Director of Graduate Studies.

Assistantships

In general, it is department policy to give preference to PhD students when teaching assistantships and research assistantships are assigned.

Teaching Assistantships (TA)

Teaching Assistants provide support to professors in charge of teaching Mechanical and Aerospace Engineering courses. Their duties may include, but are not limited to: holding office hours, correcting and grading homework, exams, or reports, conducting recitation sessions, helping with laboratory experiments or equipment setup, or devoting 10 hours (part time TA) or 20 hours (full TA) for their major professor.

TA appointments are made on either a semester or yearly basis. Reappointment depends upon satisfactory performance in teaching responsibilities, academic achievement involving coursework and research, and departmental activities (seminar attendance). Evaluations are performed at the end of each semester when considering the continuation of assistantship appointments.

International students must pass the Language Screening examination coordinated by the Graduate School to be eligible for a TA appointment, and all new TAs, both domestic and international MAE graduate students, must attend TA departmental and Graduate School orientations.

The appointment period for a TA is typically one semester, and renewals are considered by the DGS each semester based on availability, performance, and available department funds.

Stipends for a TA is \$800 biweekly.

Research Assistantships (RA)

Research Assistants are responsible for conducting research under the supervision of their faculty advisor. Their duties may include but are not limited to conducting experiments, designing and fabricating experimental equipment, computer modeling of engineering/physical processes, writing proposals, progress reports, conferences, and/or journal publications. RA appointments are normally for a period of one year. However, the length may vary depending on availability of outside research funding and performance of the RA.

Stipends for an RA ranges from \$800 and \$1100 biweekly based on experience.

The rates are based on a full time RA appointment which requires 20 hours per week devoted to research-related services. Half-time RAs devote 10 hours per week and are paid half of the stipends of full-time RAs.

Renewal and Termination of TA/RA Appointments

All Graduate Assistants shall maintain satisfactory academic records and progress toward their degrees; assistantships cannot be renewed if academic progress is unsatisfactory, e.g., scholastic probation, or failure to complete required examinations within the specified time.

Appointments cannot be renewed beyond the end of the academic term during which all degree requirements will be satisfied. Appointments are not renewed if the assistant's overall service to the department and University is unsatisfactory. Appointments will not be renewed if funding is unavailable.

Teaching and research assistants are not required to work during the following official University holidays: New Year's Day, Martin Luther King Day, Memorial Day, Independence Day, Labor Day, Presidential Election Day, Thanksgiving Day, Day after Thanksgiving, Christmas Day, and Bonus Holidays (Dec. 24th-Jan. 2). However, since TAs and RAs are classified as temporary employees of the University, they are not eligible to receive vacation days and sick leave with pay. Students are expected to devote full-time work to their research projects between semesters, except for the one week holiday period after Christmas Day.

Appendix A

Special Requirements for Entry into Mechanical and Aerospace Engineering Graduate Programs

Any graduate of an ABET accredited Mechanical and Aerospace Engineering program may enter the ME graduate program directly, provided GPA and GRE admission requirements have been met. However, some graduate courses require knowledge of certain ME undergraduate work as prerequisites. The DGS may determine whether one or more of these prerequisites must be taken if they were not part of the students undergraduate ME program.

Students with a bachelor's degree in certain fields may be required to take specific undergraduate ME courses to attain required prerequisites in their chosen field of study. Some typical examples are:

- an engineering major other than Mechanical or Aerospace Engineering, or
- a non-engineering major, such as mathematics, physics, or chemistry.

Such students must have completed the equivalent of, or must complete with a grade of B or better within the first year of UK graduate study, one or more of the following courses:

- ME 321, Thermodynamics II
- ME 325, Elements of Heat Transfer
- ME 330, Fluid Mechanics
- ME 344, Mechanical Design
- ME 440, Design of Control Systems

Students lacking the prerequisites for any of these courses which pertain to their graduate field of study will be given one additional semester to meet the above requirements.

Appendix B

Graduate Student Forms

Forms for Graduate Students are found in electronic format on the Graduate School webpage: <http://gradschool.uky.edu/degree-forms>

Graduate Student Profile

All brand new graduate students are required to fill out and turn in the Graduate Student Profile form to the Graduate Student Coordinator. Additionally, current students with changes to their info should submit a form. Students should fill out the electronic version when possible including electronic signatures. The Graduate Student Profile form is here:

<https://www.engr.uky.edu/research-faculty/departments/mechanical-and-aerospace-engineering/graduate/resources-current-graduate-students>

Plans of Study

MS Students (both Option A and Option B) must file a Plan of Study form each semester, even if no changes occur, until all coursework is finished. Only those courses listed on the Plan of Study will count towards a student's degree program. Faculty advisors of students that register for courses not listed on the Plan of Study will be notified and the students may be dropped from the courses.

These forms should be filled out and submitted electronically when possible. The Plan of Study forms are here:

<https://www.engr.uky.edu/research-faculty/departments/mechanical-and-aerospace-engineering/graduate/resources-current-graduate-students>

PhD students are required to file a Plan of Study once a year along with their PhD Assessment, even if no changes occur, until all coursework is finished. Only those courses listed on the Plan of Study will count towards a student's degree program. Faculty advisors of students that register for courses not listed on the Plan of Study will be notified and the students may be dropped from the courses. The PhD Plan of Study Forms are here:

<https://www.engr.uky.edu/research-faculty/departments/mechanical-and-aerospace-engineering/graduate/resources-current-graduate-students>

Additional Graduate Student Forms

Additional forms needed by both MS and PhD students can be found at the Graduate School website. Forms include add/drop worksheets, request for credit overloads, withdrawals, request for repeat option, and University Scholars program application. Find additional forms here: <http://gradschool.uky.edu/studentforms>

Appendix C

Departmental Procedure for MS Option B Final Examination

The Final Examination will be conducted by an examination committee comprised of at least three (3) MAE faculty members. The chair of this committee must be appointed by the students first semester, and in accordance with deadlines set forth by the graduate school. It is the student's responsibility to obtain the Examination Committee appointment form and to ask appropriate faculty members to serve on the committee. Unless modified by the Examination Committee, the following guidelines will be used during the examination:

There will be two (2) distinct portions of the Final Examination:

1. Student presentation of a project with faculty questions regarding the project;
and
2. Faculty questions on subject matter covered during the students MS coursework.

In order to pass the MS Option B Final exam, students must satisfactorily answer questions in BOTH of these areas. The Student Project must be selected in consultation with the Examination Committee and approved, in advance of the examination, by the Examination Committee chair. The detailed format of the final examination is at the discretion of the Final Examination Committee and must be in accordance with Graduate School requirements. However, unless modified by the Examination Committee the following guidelines are suggested:

-The Student project presentation should take no more than 30-45 minutes.

-Since Option B student conduct no formal research project, the project presentation may be based on an independent self-study project. The primary emphasis of the project presentation is to assess the student's communication skills, not the originality or complexity of the project itself.

-The first slide of the presentation (before the title slide) should give the students name & list all courses taken in pursuit of the Option B MS degree (including the semester in which each course was taken.)

-The student should bring hard copies of the presentation for each of the committee members.

-Questions on coursework should be concept oriented without involved calculations or lengthy derivations.

Appendix D

Departmental Procedure for PhD Written Qualifying Examination

The PhD Qualifying Examination consists of both written and oral components. The written part of the Qualifying Examination is satisfied by passing a written examination which is administered by the Director of Graduate Studies, employing questions provided by the appropriate qualifying topic area committee(s). The written qualifying exams are designed to test mastery of required undergraduate course material. Students must pass the Written Qualifying exams in order to proceed towards the Oral Qualifying exam.

General Procedure and Timing:

Students have up to 2 seatings during which they must pass a total of three exams: one written exam in mathematics and two written exams in additional topic areas.

Seatings will occur twice a year: during the first full week in February (spring exams) and during the first full week after the Labor Day holiday (fall exams). Once a student passes an exam on a topic, they do not need to retake it. No student will be permitted to take exams in more than 2 seatings. If a student has not passed the mathematics exam and two additional topic area exams by the end of their second seating, they will be dismissed from the PhD program.

If a student fails all three exams in their first seating, a second seating for the student will only be granted after approval of the Graduate Studies Committee (GSC). In this case, the student must file a written petition with the Director of Graduate Studies justifying their request for a second seating no later than 2 weeks after receiving the results of their exams. The student's suitability for a second seating will be evaluated by the GSC based on their scores on the exams, performance in graduate coursework, and likelihood of success in passing exams if granted a second seating.

Timing of exams:

- Students who enter the Ph.D. program with a Master's degree must take 3 written exams (mathematics + 2 additional topics) during their second semester. This is their first "seating". If the student does not pass all 3 exams during their first "seating" they must take additional exams during their third semester. This is their second and final "seating". If they have not passed a total of 3 exams (mathematics + 2 additional topics) by the end of the second seating they will be dismissed from the Ph.D. program.
- Students who enter the Ph.D. program with a Bachelor's degree must take 3 written exams (mathematics + 2 additional topics) during their third semester. This is their first "seating". If the student does not pass all 3 exams during their first "seating" they must take additional exams during their fourth semester. This is their second and final "seating". If they have not passed a total of 3 exams (mathematics + 2 additional topics) by the end of the second seating they will be dismissed from the Ph.D. program.
- Students who enter the Ph.D. program by switching from another degree program within the department (either MS or MFS), will be required to take

their first "seating" of exams no later than the semester after their first full semester in the Ph.D. program. Their second seating, if necessary, would be two semesters after their first full semester in the Ph.D. program.

Exam content, registration, and grading:

The content of each of the exams ties to specific required undergraduate topics, but tests at a difficulty sufficient to test mastery of these concepts. Exams will be offered in the following topic areas:

Required exam: Mathematics

Additional topic area exams (choose 2):

- Manufacturing Processes and Materials
- Solid Mechanics & Machine Design
- Dynamics
- Controls
- Thermodynamics
- Heat Transfer
- Fluid Mechanics

Students must register for the topic areas of their choice at least 4 weeks prior to the beginning of the week in which the qualifying exams are to be administered; students register by informing the Graduate Student Coordinator. Topic areas should be chosen in consultation with the student's major research advisor, if they have one.

Students must register for exactly the number of exams that they need to pass: if it is the student's first seating, they must register for the mathematics exam and 2 additional exam topic areas. If it is the student's second seating they must register for the mathematics exam if they did not pass it during the first seating. In addition, they must register for 2-N additional exam topic areas, where N = the number of additional topic area exams they passed during the first seating.

All exams are closed book. For each exam, students will be given a maximum of 3 hours to answer 5 questions. Each student should attempt all 5 questions. All questions will be graded on a numerical scale (0%-100%). The total score on the exam will be the average score of the 4 highest scoring questions on an individual student's exam. The total score must be greater than 70% for the student to pass the exam.

Results will be announced three weeks after the completion of the last set of exams.

Any appeal associated with examination results, exam contents, etc., must be submitted in writing to the DGS within two weeks of the date of the announcement of the results. Appeals will be handled by the DGS, the Graduate Studies Committee, and the appropriate Topic Area Committee. Any further appeals will be heard through established university channels.

Appendix E

PhD Oral Qualifying Exam Procedures

The Graduate School sets the policies and regulations concerning the Oral Qualifying Exam. PhD students are required to take and pass the PhD Oral Qualifying Examination. This exam inspects the soundness of the students proposed doctoral dissertation research plan. A prospectus prepared by the student and submitted to the student's Advisory Committee is required at least two (2) weeks in advance of the exam. Only those who have passed the written qualifying exam and have satisfied all course requirements may sit for this exam.

- Once a student has passed the Departmental Written Qualifying Examination, he/she can prepare for the Oral part.
- The student must schedule the Oral Qualification Examination during the first six weeks of the semester in order for that semester to count toward the student's post qualifying residency. At least a two-week formal notice is required by the Graduate School to set an examination date. Students must have their advisory committee established before the formal request for the Oral exam can be put through.
- Members of the students Advisory Committee must be given a copy of the candidates "prospectus" at least two (2) weeks in advance of the oral Qualifying Examination date. The prospectus should document the nature, significance, methodology, and the expected outcomes of the proposed dissertation research.
- The Advisory Committee of each student is responsible for deciding the format of the oral examination, for administering the oral examination, and for deciding the result of the Qualifying Examination.

The request to schedule the qualifying examination must be submitted a minimum of two weeks in advance via:

<http://gradschool.uky.edu/degree-forms>

The results of the examination must be reported by the Director of Graduate Studies to the Graduate School within 10 days of its conclusion. If the result is failure, the advisory committee determines the conditions to be met before another examination is given. The minimum time between examinations is four (4) months. A second examination must be taken within one year after the first examination. A third examination is not permitted. Residency credit will be applied for a qualifying examination taken at any time during the first semester of enrollment in this course. Classes must be in session, for the student to sit for the exam.

Appendix F

MAE Graduate Program Mathematics Requirements

The mathematics requirement in MAE may be satisfied by completing the required courses chosen in accordance with the following guidelines.

- **MS Students:** At least 6 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list, where at least 3 credit hours are from courses with prefixes MA or STA.
- **PhD Students without an MS Degree:** At least 6 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list, where at least 3 credit hours are from courses with prefixes MA or STA.
- **PhD Students with an MS Degree in Mechanical or Aerospace Engineering:** At least 3 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list.
- **PhD Students with an MS Degree in another discipline:** If at least 3 credit hours were waived for a student from an acceptable math course, the student must take at least an additional 3 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list. If no math courses were waived for a student, the student must take at least 6 credit hours from courses with prefixes MA, STA, or from a pre-approved math course list, where at least 3 credit hours are from courses with prefixes MA or STA.

Any 400G- (MA 432G may be used only at the MS level), 500-, 600-, or 700-level courses offered by the UK Department of Mathematics and any 500-, 600-, or 700-level courses offered by the UK Department of Statistics can be taken.

Below is the Pre-approved Course List for Mathematics Requirements

CE 783	Structural Finite Element Analysis
CE 699	Advanced Finite Element Analysis in Engineering
CME 780	FE Methods for Fluid Dynamics and Transport Processes
EE 420G	Electrical Engineering Analysis I
EE 525	Numerical Methods and Electromagnetics
EE 625	Computational Electromagnetics
ME 611	Boundary Element Methods in Engineering
ME/AER 613	Nonlinear Oscillations
ME/AER 672	Nonlinear Systems & Control
ME 690	Numerical Methods for Partial Differential Equations

An overall GPA of 3.0, or better, for required mathematics courses alone, is required to satisfy the Ph.D. mathematics requirement.

If a student possesses an extensive mathematics background (e.g., a Masters degree in mathematics or applied mathematics), exceptions/modifications to the PhD mathematics requirements may be proposed by the student's advisor. Any such deviations must be approved by the DGS.

Appendix G

ME PhD Annual Assessment

PhD students are to be assessed annually. The following assessment is for the current year only. This checklist must be updated once per year by each PhD student and approved by the students advisory committee at the student's Annual Review. The student's Oral Qualifying exam and PhD Defense should serve as annual review meetings. The student will also provide a two to four page word processed description summarizing progress during the preceding year. In addition, PhD students will be required to give a yearly presentation after their Quals, but the qualifier and defense can count as presentations for the years in which they occur.

Students Name: _____ UKID: _____ Entry Date: _____

I. Graduation Milestone Requirements

Cumulative GPA: _____	Prelim Oral Exam Date Completed: _____	Written Qual Date Completed: _____
Oral Qual Date Completed: _____	Progress Summary Included: _____	Most Recent Plan of Study Included: _____

II. Publications & Scholarly Activity (Accepted/In Print during the CURRENT year)

No. of Journal Articles (Peer Reviewed): _____	No. of Conference Articles (Peer Reviewed): _____	
No. of Conference Articles (Not Peer Reviewed): _____	No. of Conference Abstracts: _____	
No. of Conference Presentations: _____	No. of Invited Presentations(Non-UK): _____	
No. of Presentations (UK): _____	No. of Awards: _____	No. of Seminars Attended: _____

III. Professional Service

No. of Journal/Conference Articles Reviewed: _____	No. of Conferences or sessions chaired /Co-chaired: _____
TA Position Yes: _____ No: _____	Semester _____ Course: _____ Other (e.g., outreach): _____

- I. **Publications** (List publications in the format: Author(s), Last Name(s), "Title of Publication," *Journal Name*, Vol. #, pp., Year.) List only those publications from July 1st to June 30th, and note status of each publication: submitted, under revision, accepted, or in print.

Journal Articles (Peer Reviewed):

1. _____
2. _____
3. _____
4. _____
5. _____

Conference Articles (Peer Reviewed):

1. _____
2. _____
3. _____
4. _____

Conference Articles (Not Peer Reviewed):

1. _____
2. _____
3. _____
4. _____

Conference Abstracts:

1. _____
2. _____
3. _____
4. _____

Invited Seminars:

Title: _____
Institution Where Presented: _____

Awards:

Award: _____
Awarding Institution: _____
Date: _____

Award: _____
Awarding Institution: _____
Date: _____

PhD Progress Summary Included _____

Student Signature: _____

Date: _____