This document describes an overview of the required Area Examinations for PhD students, including timeline, purpose, topics, waivers, scheduling, registration, results, etc.

Area Examinations	
Timeline	Before a student becomes an official candidate for the PhD degree, the Area Examinations (and Preliminary Examination) must be passed. The first attempt at the Area Examinations must be within three semesters after starting the PhD program, excluding the summer semester. **For example**: *If you begin in the Spring 2020 semester, you would be required to complete the Area Examinations before the end of the Spring 2021 semester.*
Responsibility & Authority	The responsibility and authority for the implementation of the Area Examinations rests with the Mechanical Engineering faculty, however, certain portions are delegated to the ME Graduate Committee and the student's Advisory Committee.
Purpose	The Area Examinations exist to provide assurance that all PhD candidates have sufficient knowledge of fundamental principles in selected areas of mechanical engineering. All PhD students must take the Area Exams, including those who do not have Bachelor's and/or Master's degrees in Engineering.
Options	
Topics	The student is expected to demonstrate a firm command of fundamental principles in applied mathematics, and at least 2 of the following approved areas of Mechanical Engineering: 1. Acoustics 2. Applied Optics 3. Control 4. Design 5. Dynamics 6. Fluid Mechanics *(see waiver section)* 7. Heat & Mass Transfer *(see waiver section)* 8. Solid Mechanics 9. Thermodynamics *(see waiver section)* The Area Examination topics are approved by the ME faculty with recommendation by the Graduate Committee.
Knowledge Level	The level of command of these principles should be at the baccalaureate, and in some cases, Master's level.
Study Guides	Copies of previous area exams are available at the Boiler Copy Center in the Purdue Memorial Union. Study guides are available on the web at:

	https://engineering.purdue.edu/ME/Academics/Graduate/currgrad.html
Waivers	To qualify for the Area Exam Waivers, the class completion must be prior to the first attempt at the Area Exams. The courses involved with the waivers, may also be included in the student's Plan of Study.
CENUT Waiver	**CENUT Area Exam Waiver**—A student who has completed ME 50000 (Advanced Thermodynamics, West Lafayette campus) with a minimium grade of B+, prior to the Thermodynamics Area Exam will be considered to have successfully completed the requirements of the exam.
Fluid Mechanics Waiver	**Fluid Mechancis Area Exam Waiver**—A student who has completed ME 50900 (Intermediate Fluid Mechanics, West Lafayette campus) and ME 51000 (Gas Dymamics, West Lafayette campus), each with a minimum grade of B+, prior to the Fluid Mechanics Area Exam will be considered to have successfully completed the requirments of the exam.
Heat Transfer Waiver	**Heat Transfer Area Exam Waiver**—A student who has completed ME 50500 (Intermediate Heat Transfer, West Lafayette campus) with a minumum grade of B+, prior to the Heat Transfer Area Exam will be considered to have successfully completed the requirements of the exam.
Scheduling	
When Offered	Written examinations in the areas listed above, including applied mathematics, will be offered each Fall and Spring semester.
First Attempt	For the first attempt, the student must take all 3 Area Examinations during one semester.
When Register	Registration for the examinations should take place before the last week of classes in the previous semester, including summer.
Exception	A request by the student for an exception to these requirements must be in writing to the student's Advisory Committee and should clearly indicate the unusual and/or special circumstances justifying the request. If the student's Advisory Committee approves, the approved request must be transmitted to the Graduate Chair in time for appropriate action, as the request requires approval by the Graduate Committee in addition to the student's Advisory Committee.
Registration	
	Early in the semester, the Graduate Office will announce registration for the Area Examinations.

Registration Form	Area Examinations are usually held during the 4th & 5th week of the semester. Students will receive the Area Examination schedule and registration form via email. The registration form will also be posted on the ME web site at: *https://engineering/purdue.edu/ME/Academics/Graduate/currgrad.html*
Register	To register, complete the registration form, listing a minimum of 3 tentative Advisory Committee faculty members and signed by the Major Professor and return to the ME Graduate Office by the designated due date. Once registered, the student will be given a schedule fo the exams and will be expected to appear in the room listed for that examon the day and time scheduled.
Grading & Reporting Exam Scores	
Area Exam Committee Input	The student will be evaluated on performance in each Area Examination by the respective Area Exam Committee. Each Area Exam Committee Chair will report results for each student to both the Major Professor and Graduate Committee on a pass/fail/conditional-pass basis. For a "conditional-pass", the Area Exam Committee will provide requirements for remedial action. If those requirements are satisfied, the student passes the exam. Failing to satisfy the requirements means the student fails the exam.
Advisory Committee Input	The Major Professor of the student, in consultation with the Advisory Committee, will provide to the Graduate Committee with a written evaluation of the performance of the student to date, including coursework, various components associated with research potential and progress of the student (interactions with group members, scientific contributions, development of experimental skills, theoretical developments, etc.), and the Major Professor's intention to retain and financially support (given the availability of resources) the student for further PhD studies in ME. The Advisory Committee has the option to include additional information that is deemed relevant to Graduate Committee's deliberations.
Results	The Graduate Committee will evaluate the student's overall performance in all 3 Area Examinations and the evaluation of the Advisory Committee. The results of this evaluation will be one of the following: 1. **Pass:** The student who has clearly passed the 3 Area Examinations and has a satisfactory input from the Advisory Committee will normally be

	allowed to continue in the PhD program, leading to the preparation of the PhD proposal for the Preliminary Examination. 2. **Fail:** A student not passing one (or more) of the Area Examinations on the first attempt may be allowed to retake it (or them) at the next offering of the examination(s) that were failed. When retaking the exam(s), the student may choose to take an exam in a different area. Alternatively, the Graduate Committee may advise the student after the first attempt to transfer to the Master's program. A student who fails to retake of an exam will be dismissed from the graduate program. 3. **Conditional Pass:** A student with lower than acceptable performance in an Area Examination may be required to remedy the deficiencies by taking an appropriate course. The course may be at the graduate level or at the undergraduate level. The minimum performance required to be achieved for meeting the requirements will be specified. The student and the Major Professor will be notified of the final decision of the Graduate Committee for Area Examinations (pass/fail/conditional pass) in each area as well as an overall pass/fail/conditional pass grade in a letter from the Graduate Chair. Students not passing an exam are encouraged to discuss their performance with their Major Professor as well as the appropriate area exam chairs.
Unsatisfactory Area Exam Results	
Dismissal	A student is given only 2 attempts to pass an Area Exam, subject to the process described above (Grading & Reporting Exam Scores). The student who fails an area exam and is allowed to have a second attempt must retake that exam the following semester. **A student will be dismissed from the graduate program by the Graduate Committee if any Area Examination is failed twice.**
Appeal	
	An appeal of a dismissal may be made as a written petition, explaining the reasons the student should be allowed to continue in the PhD program, to the Graduate Committee by the student with a supporting letter from the student's Major Professor and Advisory Committee. A student in the D-PhD or PhD program who fails to pass all area exams may petition the Graduate Chair to change from the PhD to the Master's program. After completing the Master's degree, the student may apply to the PhD program. If accepted, the student will start over with Area Examinations.