FAQs: Ph.D. Candidacy Examinations in EME

What is its purpose?
The Ph.D. candidacy examination is intended to determine whether a student has the preparation, intellectual capacity, and professional attitude to successfully complete the EME Ph.D. program. It is required for formal admission into the Ph.D. program.

When is it taken?
- The EME graduate program requests students to take it before the end of their first year of Ph.D. studies. The Graduate School mandates the examination be taken within three semesters of entry into the doctoral program (summer sessions do not count).
- **Failure to schedule the exam before** the start of the fourth semester of the doctoral program (summer sessions not counted) will be treated equivalently to the student having taken the candidacy exam and failed. A report to this effect will be automatically submitted to the Graduate School by that date. In these cases, students would be permitted to re-take the candidacy exam within the following two semesters. If the student does not pass the Ph.D. Candidacy Examination at that time, or does not take the exam within this window, the student will be automatically terminated from the program.

What are the eligibility criteria?
- The student **must** be in good academic standing and **must** be registered full-time or part-time (with international office approval for international students) in the semester in which the Candidacy Examination is taken. Summer sessions are excluded. Students may take the examination during a summer session without formal registration if they are registered in the Spring and Fall semesters immediately preceding and following the exam.
- The student **must not** have any deferred (DF) or missing grades in their record.
- The student **must** have a **minimum grade-point average of 3.00** for work done at Penn State University at the time the candidacy examination is to be scheduled.
- The Graduate School recommends that the examination be scheduled after **at least 18 credits** have been earned in graduate courses beyond the baccalaureate.
- Prior to scheduling a Ph.D. Candidacy Examination, the student is expected to have **removed any perceived deficiencies** on topical coverage by taking, in consultation with the academic advisor, additional 400-level courses and by getting at least a grade of B in them.

What needs to be done first?
- **Prior** to requesting the scheduling of a Ph.D. Candidacy Examination, the student must write a detailed research proposal which will form the basis of the Ph.D. Candidacy Examination.
- The student may choose the research topic or request the EME graduate office to form of a sub-committee that will suggest up to three (3) topics from which the student may choose.
- The candidacy paper and presentation should be written by the student alone and reflect the student's own work. Student and advisor may discuss content and style, as well as logic and significance of ideas, but under no circumstance should the advisor edit the text or content of the manuscript and presentation. Students are thus encouraged to talk with their advisors regarding the structure and content of their candidacy papers, as well as any relevant research issues, prior to scheduling the examination.
- The Ph.D. Candidacy Proposal will have a **maximum of 15 pages—from first to last page**—including all figures and excluding references and nomenclature (if any). **Every page**
of the manuscript must be numbered. A double-spaced document is recommended, although a minimum of 1.5 line spacing may be used. No single-spaced manuscripts will be accepted. The recommended font type is Arial with a minimum font size of 11 pt.

- The guidelines that should be used while preparing a Ph.D. Candidacy Proposal in EME are (page lengths for each section are a suggestion, with the exception of Section 1 which may not exceed one and a half pages in length):

  **Section 1 – Proposal Title, Author Identification, and Executive Summary:** allowing the committee to immediately identify within 1 ½ pages: 1) the motivation and importance of the work (background), 2) the purpose (objectives), 3) the techniques to be used (methodology), and 4) the intellectual contribution of the expected outcome or deliverable. *This section may not exceed 1.5 pages in length.*

  **Section 2 (3 ½ - 4 pages)** – Relevance of the research and concise description of the “State of the Art” in the subject area of the proposal (survey and analysis of pertinent literature).

  **Section 3 (2 pages)** – Statement of the problem and specific objectives. Concise description of what is missing from the current “state of the art”. Address the need for additional work/information in that area, which leads to your objectives.

  **Section 4 (3 pages)** – Proposed methodology, necessary experimental equipment and procedures, modeling approach, data sources etc. This section should clearly and explicitly articulate the necessary laboratory facilities, data sources, software or other tools required to facilitate completion of the proposed research. If the proposed research would utilize resources outside of the University domain (e.g. specialized facilities not located on the University Park campus; proprietary data sources) the candidate should articulate a plan for obtaining access to those resources.

  **Section 5 (3 pages)** – Discuss any preliminary work that may demonstrate the promise and feasibility of the proposed research.

  **Section 6 (1 page)** – Discuss the potential scientific impact of the research. This section should contain a clear and concise statement of the scientific contributions of the proposed research.

  **Section 7 (1 page)** - Tentative timetable for completion of research. This section should focus on the research proposed and not the student’s Ph.D. program.

  **Addendum 1** – Nomenclature (if any)

  **Addendum 2** – Reference List

**How to request the examination?**

Fill out the “Ph.D. Candidacy Examination Request Form” (found at the end of this document), staple it to your Ph.D. Candidacy proposal, and submit it as a single document to Jaime Harter (103 Hosler). The request must be received at least 3 weeks prior to the earliest intended examination date. **Concurrently, please submit via email (ila20@psu.edu) the title and executive summary of your research proposal to be used for circulation among prospective committee members.** The package will be returned to the student without further action if the request form is not completely filled out and/or the research proposal does not comply with the requirements delineated above. The EME Graduate Education office may also request an electronic copy of the proposal if deemed necessary for review.

**How is the PhD Candidacy Examination Committee appointed?**

- The Ph.D. Candidacy Examination Committee is selected by the EME Graduate Education Office. The committee will be made up of at least three EME graduate faculty members and consists of at least two faculty members from the student’s research concentration area. One member of the committee will serve as the Chair.

- The Ph.D. Candidacy Examination Committee is independent from any future Ph.D. committees needed for comprehensive and defense examinations.

- The thesis advisor serves only an ex-officio role in the committee, including co-advisors, with no vote on the candidacy decision.
How is the PhD Candidacy Examination scheduled?
- After the examination request is accepted, the EME Graduate Office will prepare Ph.D. Candidacy Committee Appointment Forms for the student to pick up. These forms will identify the membership of the Ph.D. Candidacy Committee and will be added to the student's original package.
- The student will circulate the Ph.D. Candidacy Committee Appointment package among members to secure signatures and identify a mutually agreeable examination date.
- The student must return the entire package to the EME Graduate Education Office at least two (2) weeks prior to the agreed-upon exam date, with all required signatures, to formalize the appointment of the committee and final processing of required exam documentation.
- The entire PhD Candidacy Examination will typically last from 2 to 3 hours, and thus enough time must be allowed during scheduling.

What is the format of the PhD Examination?
- During the day of the examination, the student defends the highlights of the research proposal in a formal presentation which will last no more than 30 minutes.
- The presentation and the proposal will be judged on technical content, clarity, relevance to the intended audience, organization, appropriate use of visual aids, and effectiveness of delivery.
- Committee members will ask questions about the proposal and other topics related to prior coursework. Questions unrelated to the proposal may be asked to explore any possible deficiencies in the student's background and training; additional coursework may be planned.
- Research performance may also be used as a criterion in making the pass/fail decision on the Candidacy Examination. Research advisors may be asked to provide the Candidacy Examination Committee with an evaluation of the research performance of the student.
- Ph.D. Candidacy Examinations are not publicly announced but the student is welcome to invite an audience for the 30-minute presentation. The subsequent examination will be conducted in closed doors without audience members.

How is a decision made?
- The Ph.D. Candidacy Examination Committee will vote on acceptance into candidacy after the examination is over.
- If the exam is not passed on the first attempt, it may be taken once more within the following two (2) semesters. The committee may recommend that the candidate complete an M.S. thesis before proceeding to the Ph.D if the student does not have a master's degree in EME.
- If a new Ph.D. Candidacy Examination is requested, a new committee will be formed by the EME Graduate Education Office which may consist of none, some, or all of the previous committee members.
- The student must be informed of the outcome of the examination (passed/failed) immediately after the end of the committee deliberations. The committee chair must submit a formal report (with a pass/fail verdict) to the EME Graduate Education Office within two (2) business days of the examination being taken. In the absence of a report, a “fail” verdict will be recorded in the student’s file and a new committee will be appointed if a second examination is still allowable.
- In case of a failing decision, the chair of the committee writes a letter to the student explaining the reasoning behind the decision and recommended remedial action, when applicable. This letter needs to be attached to the formal notification sent to The Graduate School after the examination has concluded.
Is it possible to combine PhD Candidacy Exam and MS Defense?

- For students in the M.S. program who wish to pursue the Ph.D., the M.S. thesis defense may serve as the Candidacy Examination.
- When applicable, fill out the “M.S. Defense Examination Request Form” (see Jaime) and the “Ph.D. Candidacy Examination Request Form” (found at the end of this document) and submit both to Jaime Harter (103 Hosler). The request must be submitted at least 3 weeks prior to the earliest intended examination date. The M.S. manuscript will substitute for the mandatory 15-page research proposal document and will be used by the committee to evaluate the student’s potential for conducting PhD-level research. It is expected that the next milestone, the PhD Comprehensive Exam, will solely focus on the specifics of the actual PhD project. The M.S. manuscript should not be submitted with the Examination Request Form.
- Upon receipt of the request, the EME graduate office will prepare Ph.D. Candidacy Committee Appointment Forms identifying the membership of the Ph.D. Candidacy Committee. Membership will mainly consist of EME graduate faculty members serving in the M.S. Thesis Defense Committee and any additional members deemed necessary by the EME Graduate Education Office. The chair of the M.S. thesis committee (student’s advisor) becomes an ex-officio member during Ph.D. Candidacy Examination deliberations.
- Committee appointment forms should be circulated by the student to secure signatures from all members and identify a mutually agreeable examination date. The student must return the forms to the EME Graduate Education Office at least two (2) weeks prior to the agreed-upon exam date, with all required signatures, to formalize the appointment of both committees and final processing of required documentation.
- A single 30-minute presentation and one (1) combined examination period will be held for both the M.S. Defense and Ph.D. Candidacy. During the preparation of the combined presentation, the student should address the areas for future work relevant to the PhD Candidacy Examination.
- Once the examination period is over, the members of each committee will fill out the corresponding forms assessing the student performance for each independent examination after deliberations. The entire examination will typically last from 2 to 3 hours, and thus enough time must be allowed during scheduling.

What is the English Competency Requirement for Ph.D. Students?

All Ph.D. students, domestic and international, will undergo a mandatory assessment of English competency during their Ph.D. Candidacy Examination. The assessment will include the student’s ability to read and comprehend technical literature, the ability to write well, the ability to make formal presentations and the ability to participate in scientific and technical discussions. At the end of the examination, all members of the Ph.D. Candidacy Examination Committee will submit their evaluation of English Competency consisting of: (a) Writing (assessed through the evaluation of the manuscript submitted prior to the examination), (b) Formal Presentation (assessed through the evaluation of the formal presentation of the research proposal), and (c) Oral Discussion (assessed through the student’s ability to participate in scientific and technical discussions during the examination). Students failing one or more categories of the assessment will be required to enroll in course(s) offered at the University to improve English competency in the areas identified as deficient. Please refer to the remedial steps outlined in Section 5.8, p. 25, of the EME graduate guide.

Approved: 09/2013; 03/2013 by EME Associate Head for Graduate Education upon review and recommendation by EME Graduate Program Committee.
Eligibility criteria check list:

<table>
<thead>
<tr>
<th>Eligibility Criteria</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you registered (at the time of the examination)? [Applies to Spring and Fall sessions only] -- Circle “YES” if the examination is taking place during a Summer session</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Are you in good academic standing? Is your current GPA (grade-point average) at least 3.0?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Are there no deferred (DF) grades or missing grades in your current transcript?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Have you removed any perceived deficiencies on topical coverage in consultation with your advisor? [Circle “YES” if not applicable]</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

If you do not meet all of the eligibility criteria above, your exam will not be scheduled. Please fill out the rest of this form once you meet all these criteria.

Student name (last, first, middle initial)  
PSU ID

Email address  
EME Major/Option  
Minor (if any)

Student mailing address

Title of the mandatory 15-page (max) research proposal (must be attached to this form if not a concurrent M.S./PhD Candidacy Exam)

Examination Tentative Dates (no sooner than 3 weeks from the reception of this form, please provide a time window of about a week)

I have secured the availability of my advisor(s) [ex-officio member(s)] for the indicated tentative dates. We sign below in agreement:

Typed EME academic advisor(s) name(s)  
Signature(s)  
Date

Student Signature  
Date

Please submit completed form to Jaime Harter (103 Hosler). Concurrently, please submit via email (jla20@psu.edu) the title and executive summary of your research proposal to be used for circulation among prospective committee members.

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Received by EME Graduate Office  
Initials/Date: _______________________________