

# EME PhD Final Oral Examination Policy

## Purpose

To establish the content, form, scheduling, and reporting requirements for PhD Final Oral Examinations in the Energy and Mineral Engineering Department.

## Academic Goal

The purpose of these final oral examinations is to assess the scholarly attainment of the candidate and determine, together with an assessment of the dissertation, if the candidate should be awarded the PhD.

## Scope

All EME PhD candidates.

## Background

The final oral examination is the culminating summative assessment for the PhD candidate in Energy and Mineral Engineering, and along with the dissertation, determines if the candidate should be awarded the PhD. In Energy and Mineral Engineering, successful PhD candidates will demonstrate their capabilities in the following areas:

- **KNOW:** Graduates will demonstrate in-depth knowledge of the core theories and methods in the field of energy and mineral engineering as well as within one of the program options. This will include the application of physics, chemistry, advanced mathematics, economics and/or engineering principles to problems in energy and mineral engineering.
- **CREATE:** Graduates will be able to creatively synthesize new ideas or hypotheses in energy and mineral engineering and economics, devise critical tests of hypotheses, and/or develop unique solutions to problems in energy and mineral engineering and economics.
- **APPLY:** Graduates will be able to carry out independent and original research studies that address current problems in energy and mineral engineering synthesizing theory and/or experiments.
- **CRITICAL THINKING:** Graduates will be able to review and critically analyze work by others in their field of specialty.
- **COMMUNICATE:** Graduates will be able to convey ideas or arguments in clear, concise, well-organized proposals, papers and reports as well as in formal, oral presentations.
- **PROFESSIONAL PRACTICE:** Graduates will demonstrate the ability to collaborate in a collegial and ethical manner with other professionals within their field and within diverse scientific backgrounds.

The Penn State Graduate School policies previously set limits on remote participation such that only a single committee member could participate in comprehensive via teleconference or video conference. The examinee and all other committee members were required to be present in-person on campus. During the COVID-19 pandemic, the Graduate School relaxed these policies allowing all committee members and PhD candidate examinees to participate in these exams remotely via video conferencing. However, beginning in Fall 2022, these flexible remote participation guidelines were rescinded, and the policy reverted to its previous form. Effective 8 May 2023, the Penn State Graduate School revised final oral exam policy permits departments to establish their own guidelines on remote or in-person participation for these exams.

## **Related University and Graduate School Policies**

GCAC-608 Final Oral Examination – Research Doctorate

### **Policy Statement**

1. The responsibility for scheduling the final oral examination rests with the candidate and the PhD committee chair/research adviser.
2. The following limits on scheduling final oral examinations apply:
  - a. A candidate must have passed their comprehensive examination in their currently enrolled PhD program.
  - b. The candidate must be enrolled full- or part-time in EME 601.
  - c. The examination must be scheduled at least two weeks prior to the date of the examination.
  - d. The examination may not be scheduled less than 3 months from the date of the candidate's comprehensive examination.
3. The candidate and adviser must agree on the mode of the examination including all in-person, all remote, or hybrid (partially in-person and remote).
  - a. Those participating remotely must use University-licensed interactive audio-video technology, where possible. If unable to connect with video, audio-only participation is allowed.
  - b. When the candidate and adviser cannot agree on the mode of the examination, the EME Associate Department Head for Graduate Studies will make the final decision. Either the candidate or adviser can appeal the decision of the EME Associate Department Head for Graduate Studies to the EMS Associate Dean for Graduate Education and Research (ADGER).
  - c. The participation mode must be communicated to all committee members at the time of scheduling, at least two weeks prior to the date of the examination.
  - d. Unanticipated changes to the examination mode that occur after scheduling for any reason (due to candidate or committee member travel disruptions, for example) must be agreed to by the candidate and adviser and a majority of the examination committee. If agreement cannot be reached, the EME Associate Department Head for Graduate Education will make the final decision. Either the candidate or adviser may appeal the decision of the EME Associate Department Head for Graduate

Studies to the EMS Associate Dean for Graduate Education and Research (ADGER), whose decision will be binding on the candidate and the committee.

4. All committee members must participate in the examination.
5. Prior to the examination, the candidate shall provide a written dissertation to their committee that describes the scope of their research activities and accomplishments to be evaluated for earning the PhD.
6. On the date of the examination, the candidate examinee will conduct a public oral presentation of their research. This presentation will be followed by a closed question-and-answer session between the committee and the candidate which may cover details, design, motivations, findings, and conclusions of the research.
7. The scope of the examination shall consist of an evaluation by the committee of the overall research accomplishments of the candidate as described by their oral presentation, answers to questions during the closed session, and their written dissertation. The committee members will evaluate the candidate's attainment of the following standards:
  - a. The candidate has successfully and independently conducted original research that adds to the body of knowledge in their field of expertise.
  - b. The candidate has appropriately devised and tested hypotheses relevant to their field of expertise with the creative use of appropriate methodologies and applied analyses and experiments to develop well supported conclusions.
  - c. The candidate has placed their work and its conclusions within the existing body of literature.
8. A favorable vote of at least two-thirds of the committee members is required to pass the examination.
9. The results of the examination must be reported, regardless of the outcome, within five business days following the end of the examination.

## **Procedure**

Candidates and PhD committee members must follow the following department procedures when preparing for, announcing, conducting, and reporting the results of these examinations:

- EME PhD Final Oral Examination Procedure

## **Revision History**

21 APR 2023	Original publication of this policy. Accepted based on a vote of the EME department graduate faculty on 21-APR-2023. No previous documented comprehensive exam policy existed.
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