

PhD Proposal Defense (Qualifying Exam) Guidelines – Rowan University – Department of Mechanical Engineering

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Examiners:	PhD Thesis Committee, formed of at least 5 members: Student's Advisor (<u>Chair</u>) External Members (1 or 2) – for those external to Rowan University, that person's CV should be submitted, vetted, and approved by the ME Graduate Program Committee ME Departmental Members (2 or 3) – Tenured, tenure-track, or full-time lecturers
Format:	Closed oral proposal defense of 30-45 minutes, followed by 60-75 minutes of questioning and ~15 minutes of Committee-only deliberation
Outcomes:	Committee decides Student's readiness for (semi-)independent research at a capacity commensurate with midstream PhD candidate peers in the Student's research field. Final Committee judgement (majority vote - Pass/Conditional Pass/Fail) may be moderated with more nuanced recommendations to Student, Advisor, and department regarding research directions, remedial actions (suggested coursework, teaching assignments, proposal revisions), etc. These recommendations are to be captured in the Qualifying Exam report.
Prerequisites:	Satisfactory completion of ME Preliminary Exams, typically 12-24 months after start of PhD program.

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Description/Objectives:

This PhD proposal defense is one of the milestones in the PhD in Engineering curriculum, and seeks to assess the presenting Student's preparedness toward becoming an independent researcher. It consists of an oral presentation and an oral examination based on a written proposal for technical work leading to completion and defense of the candidate's PhD thesis.

During the proposal defense, the presenter will explain the central problem of her/his work, including demonstrating an understanding of relevant background material bearing on the research problem and indicating a general grasp of how the central problem fits into the bigger picture. Before the proposal defense, the candidate will submit a written thesis proposal to the thesis Committee.

The key criterion for successful completion of the qualifying proposal defense is the presenter's demonstration of holistic research aptitude. This aptitude must suggest to the assembled Committee of experts that the presenter is prepared for the (semi-)independent research rigors of PhD student candidacy. The Committee will also use this venue to comment on other aspects of the training of the candidate, such as revision of the proposed research plan, suggestions for teaching assignments, plans for publications and intellectual property development, and development of candidate's leadership/service activities.

Format Details:

The defense session follows submission of the candidate's written proposal to the Committee, roughly 2 weeks prior to the oral defense. The session consists of **an uninterrupted presentation** (~30-45 minutes), **a question period** (~60-75 minutes), and **a closed decision period exclusively within the Committee** (~15 minutes).

The format of the presentation is at the discretion of the presenter; however, it will typically overlap the written proposal contents and include discussion of:

1. A concise summary of the background and related work in the field of research
2. Basic idea/concept of the research topic and clarification of its importance
3. Proposed solutions/strategy to tackle the central research problem
4. Expected results and some preliminary results (if any)
5. Credible arguments that these results are obtainable according to a proposed timeline
6. Acknowledgements/contributions of others

In the defense session, the candidate will:

1. Introduce her/himself, perhaps also summarizing key CV line items
2. Present a summary of the written proposal in ~30-45 minutes
3. Be prepared to answer elementary questions on the context, background, approach, and timeline of the proposed research plan, and
4. Highlight/explain her/his research contributions and potential future research directions

Final Outcome(s)/Committee Report:

At the end of the defense session (presentation and questioning), the Committee will deliberate privately amongst its members, who will each render a summary judgement as to whether the presenter has earned either **Pass** or **Fail** for her/his performance in developing the written proposal and defending it in the oral session.

In general, a passing performance will demonstrate that the presenter

- Understands her/his field of research
- Has a well-defined research problem with intrinsic engineering and/or scientific value
- Has clearly presented one or more reasonable proposals for problem solution, including experiments/analysis/modeling that is plausible within the proposed time frame

The majority vote determines the Student's performance for the Qualifying Examination, but with caveats as described below.

Conditional Pass

The Committee may record a **Conditional Pass** outcome, which results in a **Pass** *contingent* upon satisfaction of clear, constructive, actionable conditions and timelines. Such conditions, captured in the Committee Report, may include (but are not limited to), for example

- Revision of the submitted written proposal to address content or quality deficiencies
- Further acquisition of or reinterpretation of preliminary results
- Strong recommendation for teaching assistantship assignment or remedial coursework

In these cases, it is the joint responsibility of the Student, Advisor, and a departmental representative (Grad Chair or Head) to ensure the Committee's conditions are met on the prescribed timelines. Upon satisfaction of the Committee's conditions, a **Conditional Pass** automatically transforms into a **Pass** and the Student will become eligible to defend a final PhD thesis; **Conditional Pass** status must be resolved between Student and Committee before a final PhD thesis defense can be scheduled.

Failure

In the event that the presenting Student's performance does not demonstrate sufficiently robust research aptitude, the Committee may assign a majority outcome of **Fail**. In such a case, the Committee will offer clear, constructive, and, if appropriate, actionable justification for its decision.

Provided the Student has not already once failed either the Preliminary Exam or the Qualifying Exam, s/he may seek to address the Committee's concerns and repeat the Qualifying Exam within **six months** of the initial Qualifying Exam failure. Otherwise, the Student will be transferred to the MS-Mechanical Engineering track, with MS thesis or coursework option left to the discretion of the Student's Advisor and department.

Department of Mechanical Engineering Prelim Report

Student Name: _____

Time and Date of Exam: _____

Overall Result: ☐ **Pass** ☐ **Conditional Pass** ☐ **Switch to MS-Track** ☐ **Fail**

Comments (for Conditional Pass or Switch to MS-Track): _____

Committee Members Acknowledgements

Member	Name	Department	Signature
Chair (Advisor)			
Member 2 (Internal)			
Member 3 (Internal)			
Member 4			
Member 5			