

ECE PhD Preliminary Exam Procedure and Guidelines

The preliminary examination is normally scheduled after a student has completed most of their course work, but prior to the main research of the dissertation, and must be completed by the end of academic year three. If it is determined that a student, with justifiable academic or personal reasons, will not complete the exam by the end of year three, a Preliminary Exam extension request must be made directly to and approved by the Graduate School prior to the year three deadline in order to ensure that the student remains in good academic standing. Typically, preliminary exam extensions are granted for no more than one term. The preliminary exam should be scheduled with the ECE Graduate Office at least two weeks prior to the exam date using the [Exam Details Form](#).

The committee that administers this exam is nominated by the student's advisor via the Graduate School's official [Committee Approval Form](#) (submitted to the ECE Graduate Office by the student), and must be approved by the Director of Graduate Studies and the Dean of the Graduate School at least one month before the exam takes place. The committee must consist of at least five members (including the student's advisor, who normally serves as committee chair), at least three of whom must be ECE graduate faculty members. In addition, the Graduate School requires that at least one member of the committee be from outside the students' curricular area.

The examination consists of (1) a written dissertation research proposal and 2) an oral presentation and defense of this proposal.

The written dissertation research proposal should consist of a 10-page (maximum) report plus appendices providing additional supporting information. The report, which must be submitted to the committee at least two weeks prior to the exam date, should begin with a one-page executive summary, which answers the following questions and is written at a level that can be understood by an engineering/science student, i.e. using minimal jargon. *Note: these questions are modifications of the Heilmeier questions.*

- What are you trying to do?
- What is known about this topic today, or how is it done today? What are the limits of current practice/understanding?
- What is new in your approach, or what open question are you trying to answer? Why do you think it will be successful?
- Who cares? If you are successful, what difference will it make?
- What are the risks and corresponding plans to mitigate them?
- What are key steps in your effort and when do you anticipate reaching each? How will you judge success?

The remaining pages in the preliminary examination report should expound upon the answers to these questions and should include a concise description of research progress to date. This section should be written at a level to be understood by experts in the field, i.e. the preliminary examination committee.

The document must also contain an anticipated timeline for completion of all PhD degree requirements.

Supporting Information may be included in appendices, which should be organized based upon content. Examples of supporting information include: 1) more detailed information supporting the research plan and approach, 2) papers/presentations, 3) information on collaborations, 4) information on related research in the student's group, 5) relevant mathematical derivations or code.

The presentation should reflect the contents of the report. The typical presentation should be approximately 45 minutes, with extra time allotted for questions posed by the committee throughout and after the presentation.

In order to successfully complete the preliminary exam, at least four of the five committee members including the chair must vote in favor of a pass.