Policy for PhD Qualifying Exam in the Department of Electrical and Computer Engineering

Approved: 03/14/2017

The PhD qualifying exam shall consist of a written part and an oral part. Both must be passed to be a fully qualified PhD student. The oral exam will not be conducted until after the written exam has been passed.

Students are allowed two attempts to pass each part. The first attempt at the written exam will be no later than the third semester in residence as a PhD student. We recognize that not every student will fit neatly into this rule. For example, students transitioning from the MS program to the PhD program may have scheduling issues that lead to the need for some flexibility. These issues will be resolved by the chair of the Graduate Programs Committee (GPC) in consultation with the Department Chair, and if necessary, the full GPC.

Guidelines for each part follow:

Written Exam:

The written exam will be a three hour closed book, closed notes exam covering graduate material drawn from the list of classes included in this section. The instructors writing the various parts of the exam have the option of allowing calculators which are provided by the department to perform the computations.

A single departmental exam will be developed prior to the exam date, and provided to each student. Students may only attempt three parts – partial completion of more than three parts is not allowed. Students must indicate on the exam cover sheet which three sections should be graded.

To pass the written part students must compile a score of 210 or more by completing three of the exams from the following list of graduate classes, which are offered every year:

- EE5715: Linear Systems
- EE5500: Probability and Stochastic Processes
- EE5527: Digital Communications
- EE5410: Engineering Electro-magnetics
- EE5430: Electronic Materials
- EE5200: Advanced Methods in Power Systems Analysis
- CS5321: Advanced Algorithms
- EE5496: GPU and Multicore Programming

The exams will be graded on a 100 point scale, and the scores will be summed. Scores greater than or equal to 210 will be considered a passing score.

For scores in the range of 180 to 209, the GPC will make an assessment to determine if the oral exam will be allowed, or if the written exam must be re-taken, on a case by case basis. If the GPC allows the oral exam to proceed in this case it will be deemed a “weak pass” of the written exam, and the oral exam guidelines for weak pass, described below, will be implemented.
**Oral Exam:**

Students with a passing score in the written part will proceed to the oral part of the qualifying exam. The oral part of the qualifying exam will be administered by the advisor and members of the research committee from the ECE Department, and such outside reviewers as may be added by the GPC or the research advisor.

For students with a passing score on the written part, the oral exam will consist of a presentation on a research topic assigned by the research committee. No original content is expected in the presentation. However, a deep understanding of the topic is expected to be demonstrated, and the student is expected to be able to field and extemporaneously address questions from the exam committee. There is no set duration for this exam, though as a general rule we anticipate that on the order of 30 minutes for presentation and 30 minutes for questions will suffice. The research committee will determine whether the student passed.

For students who attained a weak pass of the written part, the oral exam will have a two parts:

- The first part will address shortcomings in performance on the written part, and may include faculty members selected by the GPC to evaluate performance.
- The second part will be administered by the research committee, as described above for students who passed the written part.

**Scheduling:**

- Normally, PhD students will take both the written and the oral parts of the qualifying exam during their third semester in residence. Unique circumstances which will come up will be resolved by the GPC chair in conjunction with the Department Chair if possible, or in conjunction with the full GPC if necessary.
- The written part of the qualifying exam will under normal circumstances be administered on the afternoon of the fourth Saturday of the semester during Fall and Spring semesters. The qualifying exam will not be offered during the Summer terms.
- The written and the oral part of the qualifying exams do not have to be passed in the same term, but the longest delay acceptable is to pass the written and the oral exams in successive terms.