Format: The ECE Ph.D. qualifying exam is comprised of a comprehensive exam, designed to test if a student is qualified to pursue a PhD degree in Electrical Engineering. Details are provided below.

Registration: All students must pre-register at the ECE Office to take the exam by Monday December 7th. A faculty member must sign the application form, indicating a willingness to be the Thesis Advisor.

DETAILS FOR PhD QUALIFYING EXAM:

Intent: This exam is designed to test the student’s understanding of topics from an electrical or computer engineering undergraduate curriculum.

Time: The ECE Ph.D. Qualifying Exams will be held on January 8, 2016 from 1:00 – 5:00 pm

Place: Halligan Hall, room TBD

Materials: Students may bring two 8½ by 11 inch sheets of notes. Physical constants and transform tables, if needed, will be supplied in the examination packet. Textbooks are not allowed. Calculators, if needed, will be provided. Each problem is to be completed in at most two blue books. The graders will want to see all work, so no scrap paper is allowed.

Name Code: Each student will have a numerical code to be put on the cover page of each bluebook. The grader does not know the code.

In Exam: No questions will be answered during the exam. If in doubt, make your own assumptions based on the problem statement. With the permission of the exam supervisor, you may go to bathroom.

Grading: Each problem is worth 25 points and is graded by the faculty member who writes the problem. It is important to do only one problem per blue book so that a grader does not know the grade for other problems.

Results: A student must earn a cumulative score of 70% or better to pass. Any student who fails the exam (scores between 45-70%) in January will be offered the opportunity to take an oral version of the exam, which will be offered in the month of February. At that time, the student will be required to answer questions from a committee of three faculty members for those areas of the written exam where their performance was below average. Any student receiving a score of less than 45% automatically fails the exam. Again, a cumulative grade of 70% is required to pass the exam. Failure to pass the exam after at most two attempts (one written in January and, if applicable, the following oral in February) will result in dismissal from the ECE Ph.D. program.

Preparation: The ECE office staff will give any applicant a packet of sample problems.
Students must do **4 of the 12** problems in the exam packet. The problems will be chosen from the areas below.

**12 Areas:**

1. Circuit Theory                      \( \text{ES3, EE21} \)
2. Linear Systems Theory               \( \text{EE23} \)
3. Digital Electronics                 \( \text{ES4, EE14, EE26} \)
4. Analog Electronics                  \( \text{EE21, EE22} \)
5. Electromagnetic Fields and Waves    \( \text{EE18} \)
6. Communications systems              \( \text{EE107} \)
7. Computer Engineering                \( \text{EE126} \)
8. Operating Systems                   \( \text{EE128} \)
9. Programming                         \( \text{COMP11, COMP15} \)
10. Probability                         \( \text{EE 104} \)
11. Semiconductors                     \( \text{EE-113, EE-114} \)
12. Feedback-Control Systems           \( \text{EE-105} \)