Department of Electrical and Computer Engineering
Ph.D. Comprehensive Exam Guidelines

Approved in the Department Council of May 27, 2022

Summary of the Exam Components:

I. Students must complete the course requirements for the Ph.D. program before taking the comprehensive exam.

II. Comprehensive exam is an oral examination and has two components as detailed below. To pass the comprehensive exam both components must be passed.

III. Background and specialized topics exam including at least 3 topics which will be tested based on oral questions asked by the examiners. This part will be tested in the first hour of the comprehensive exam.

IV. Critical paper review of at least two assigned research papers which will be tested based on the critical review report, presentation and answers to the questions asked by the examiners. This part will be tested in the second hour of the comprehensive exam.

V. The student must pass the comprehensive exam within 16 months from the start of the PhD program.

Exam Procedure:

The comprehensive exam procedure is as follows:

1. Within the first term of registration in the Ph.D. program, the supervisor must provide the student in writing using PhD Comprehensive Exam Form:
   - The research area for the thesis;
   - At least 3 background and specialized topics appropriate to the research area including the list of books and materials that the student should study for this part of comprehensive exam;
   - At least 2 related research papers for critical paper review. It is recommended not to use general survey papers for this exam.

2. The supervisor will determine the Ph.D. Comprehensive Examination Committee including the Chair of the examination based on the PhD Program guidelines of the department. The supervisor should inform the graduate program director (GPD) and request an approval of the committee and the PhD Comprehensive Exam Form (syllabus).

3. Oral exam date: The supervisor is responsible to schedule the Oral Exam.
   After consultation with all members of the Ph.D. Comprehensive Examination Committee, the supervisor should inform the Graduate Program Coordinator (GPC) of the oral exam date and time.

4. During the course of preparing the critical paper review report, the student will have regular meetings and consultations with the supervisor.

5. The student must submit the critical paper review report two weeks before the exam date to the GPC. The GPC will send the soft copy to the members of the examination committee. The report will be 25 pages maximum in length, 1.5 spaced and 12 font size (not including the list of references). The student should attach electronic copies of the assigned research papers to the report. The written review should cover the following:

   The review report should consist of the following components:
   - Title
   - Abstract
   - Introduction (research area and background information)
   - Problem statement
   - Methodology and results in the assigned research papers
   - Critique/Argument
   - Conclusion and potential future work
   - References

   The report should be a single and integrated document, connecting the contributions of all papers rather than a combination of individual papers.

   Note that the review report can be used as a component of the research proposal later on, although it is possible that it may need to be broadened for that purpose.

6. On the day of the exam:
   (a) In the first part of the exam, the committee evaluates the candidate on the background and specialized topics as listed in the syllabus part of the PhD Comprehensive Exam Form.
   (b) In the second part of the exam, the student presents a talk to the Examination Committee on the critical paper review report. The presentation should be limited to a maximum of 20 minutes and followed by questions from the Examination Committee to evaluate the candidate on the written and oral skills, effective communication of research findings, and critical evaluation of the assigned research papers.

7. The outcome of the oral exam is one of the following:
   - Pass (both parts of the exam are passed)
   - Pass with conditions (such as a requirement to take a course or revise the review report).
   - Fail. If the student fails, he/she may repeat the entire exam or redo the failed part in the next semester.

Department of Electrical & Computer Engineering

Student name: _____

Student ID#: _____   Date admitted to PhD: _____

Supervisor Name(s): _____

Expected Date of the Comprehensive Exam (ENCS 8501):	Expected Term of the Research Proposal (ENCS 8511):
Date _____Month _____Year _____	Term: _____ Year: _____

- This form should be completed by the Supervisor, in consultation with the student, within the first term of the first year of PhD study.

- Once completed, this form should be submitted to the GPD for approval. Upon approval, the form should be distributed to the student and PhD Comprehensive Examination Committee.

---

1. **Research Area**:

2. **Syllabus of background and specialized topics appropriate to the research area (at least 3 topic areas) including text books and other material**

    Topic 1:

    Topic 2:

Topic 3:

Topic 4:

3. **Related Research Papers (at least 2 related research papers)**:

Paper 1:

Paper 2:

Paper 3: