

The New Format of the ECE Dept. Ph.D. Qualifying Exam

Information Session for ECE Graduate Students

July 10, 2020

ECE Graduate Office

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**ELECTRICAL
& COMPUTER
ENGINEERING**

The Qualifying Exam is the First of the Three Exams Required by the ECE Dept. and UNM for the Ph.D. Degree

Accepted to ECE Ph.D. Program

Complete Core Courses

Identify Faculty Advisor and begin research

2 – 3 semesters

I. Qualifying Exam

Complete Minor and Elective Courses

Preliminary Dissertation Research

~ 1 year

**II. Comprehensive Exam
(Dissertation Proposal)**

Advancement to Ph.D. Candidacy

Dissertation Research

~ 2 – 3 years

III. Dissertation Defense

Options for Students Taking the Exam *Fall Semester 2020*:

1. Take the “Old Format” Exam

- Written exam based on core courses
- Offered on the Thursday before the semester start (August 13, 2020). This will be the last offering of the old format exam.
- **Deadline to sign up is Wednesday, July 15, 2020**
- Logistics this year likely impacted by COVID-19 restrictions at UNM. Details TBA.

2. Take the “New Format” Exam

- Oral presentation and written research proposal based on literature in student’s Emphasis Area
- Exam is individually scheduled during the semester (similar to a thesis defense)
- Dates and deadlines this semester will be flexible, as much as possible

Exam Overview

- Qualifying Exam Committee formed when the student announces his or her intent to take the exam.
- Committee will consist of 3 – 5 members, all of whom are regular faculty in the ECE Dept. The area chair in the student's emphasis area will be responsible for forming the committee.
- The Exam Committee will compile a list of at least three significant publications in the emphasis area, one of which will be the basis of the exam.
- The student will pick one publication from this list.
- After reading the paper, and any necessary background, the student will give a 30-minute oral presentation to the committee, with a concise description of the background, methods, and results of the selected paper.
- In addition, the student must present the results of his/her critical analysis of the paper and hypothesis about future directions. A question and answer period will follow the presentation.

- Additionally, the student must prepare a short (no more than three pages) research proposal, describing his or her plan for extending or continuing the research described in the publication.
- In the event that the student does not pass the exam, he or she will have one additional chance to retake it and pass. In the event of a second failure, the student will not be allowed to continue in the ECE Ph.D. Program.

Purpose of the Exam

The Ph.D. qualifying exam recommendations are meant to measure

- The student's potential to conduct independent research,
- The student's ability to express and defend technical ideas both in writing and orally,
- The student's fundamental understanding in the chosen area of research,
- The student's breadth of view of the general area of research,
- The student's scholastic competence,
- The student's ability to provide constructive criticism and support to peers in the context of writing a professional paper and in an oral discussion.

Prerequisites to Taking the Exam

- Enrollment in the ECE Ph.D. program,
- Completion of all required core courses,
- Approval by his/her graduate study advisor.

In certain circumstances, with approval of the ECE Graduate Committee, a student may: (i) replace the required core courses by equivalent courses taken at other institutions, or (ii) by taking advanced courses that are above the level of the core courses, or (iii) a combination of (i) and (ii).

Exam Format: More Details

- The exam will consist of a written report and an oral presentation followed by an oral exam.
- The student will choose a paper from a list of at least three peer-reviewed articles or papers. The list of papers will be determined by the Ph. D. Qualifying Exam Committee that that will also administer the exam.
- The oral presentation will be in the form of a private seminar with the Qualifying Exam Committee
- The student must present a concise description of the background, methods, and results of the selected paper. In addition, the student must present the results of his/her critical analysis of the paper and hypothesis about future directions.
- The oral presentation must use PowerPoint or equivalent presentation software.
- The oral presentation must lead with a 15-minute review and critical analysis of the paper followed by a 15-minute presentation of a novel research proposal related to the focus of the selected paper and the student's potential area of research.

- The Ph.D. Qualifying Exam Committee will then conduct an **oral exam** that does not exceed 1 hour.
- The oral exam will include both questions related to the oral presentation, as well as testing general knowledge covered in the core courses within the student's area of research.
- The **written report** must be in the format of an original research proposal, and it is not to exceed three single-column pages.

Criteria for Assessment

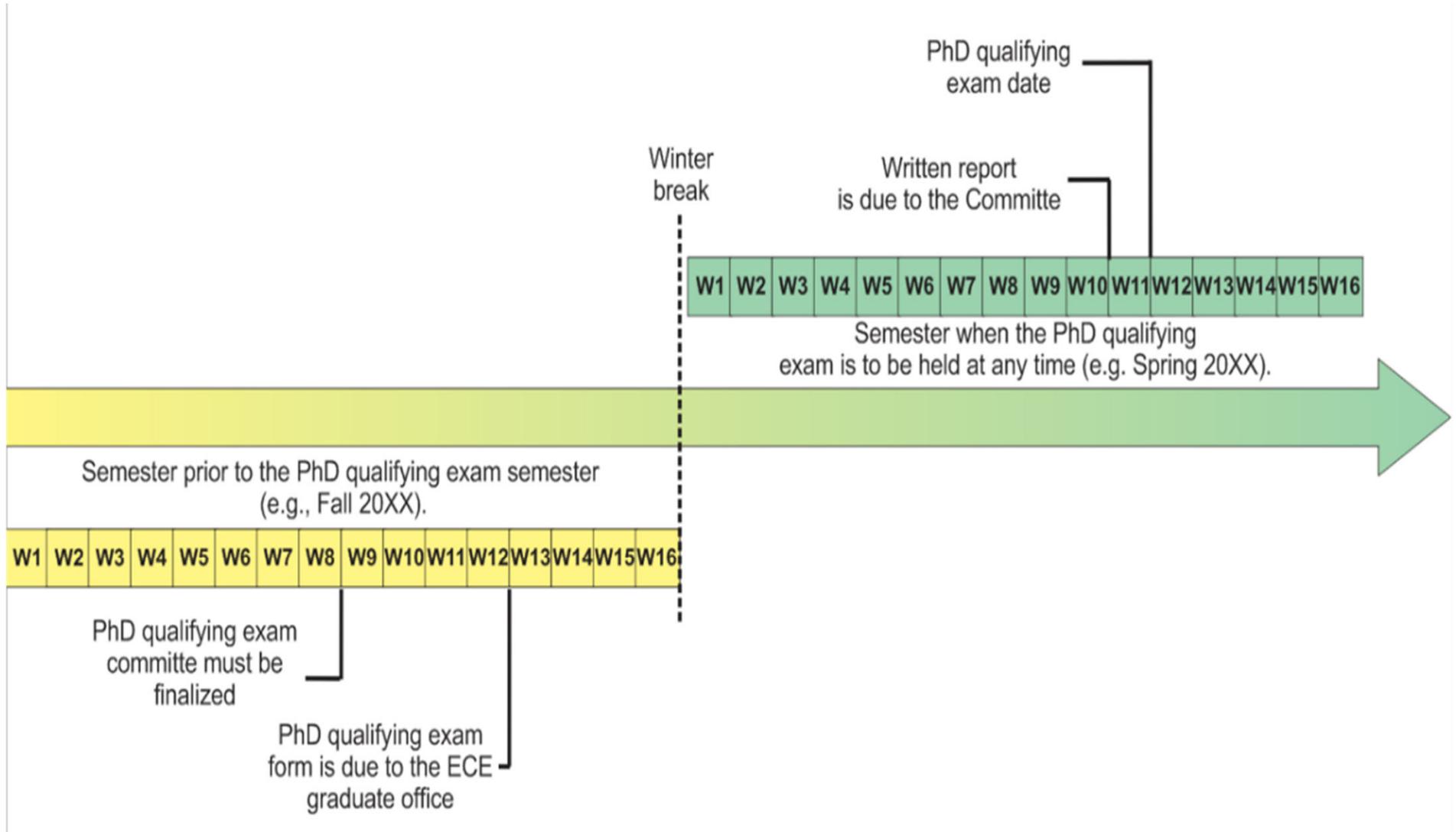
Criteria	Does not meet expectations (1)	Meets expectations (2)	Exceeds expectations (3)
Ability to present a succinct oral synopsis of the assigned paper			
Ability to critically evaluate the assigned paper			
Ability to express and defend technical ideas both in writing and orally			
Fundamental knowledge and understanding in the chosen area of research.			
Ability to clearly and concisely articulate the proposed research direction in writing and orally.			
Ability to correctly answer fundamental knowledge questions drawing on material covered within the core courses of the student's concentration.			

Exam Outcomes and Recommendations

The Exam Committee will review each student's case and conduct the oral exam to make recommendations:

- Exam outcomes after the first try will be: **pass** or **fail**. A fail recommendation in the first attempt of the Ph.D. Qualifying Exam will require that the Ph. D. Qualifying Exam Committee provides the student with a specific set of remedial actions he/she should pursue before re-taking the exam.
- Exam outcomes for the second try can only be **pass** or **fail**. A fail recommendation precludes the student from retaking the exam, resulting in the student to be eliminated from the Ph. D. program.

Exam Process/Timeline



Exam Process/Timeline cont.

- Students are expected to take the Ph. D. Qualifying Exam for the first time before the end of the fourth regular semester of study (not including summer sessions).
- ***The Ph.D. Qualifying Exam can be administered any time prior to the last four weeks of the semester (i.e., no later than November 15th for the fall semester and April 15th for the spring semester).***
- ***Eight weeks before the end of the semester prior to the Ph.D. Qualifying Exam semester***, the student must finalize his/her Ph. D. Qualifying Exam Committee. The student will also be responsible for scheduling the exam, confirming that all the Ph. D. Qualifying Exam Committee members can attend.
- Students must file a Qualifying Exam Proposal Form ***four weeks before the end of the semester prior to the Ph.D. Qualifying Exam semester***. The Ph. D. Qualifying Exam Proposal Form will be available on the UNM-ECE website for download, and it will include the student's name, UNM ID number, contact information, emphasis area, Committee Chair's and other Committee members' names. The form will also specify the date, time, and location of the exam. The form must be signed by both the student and the Committee Chair and should be submitted to the ECE Graduate Office.

- The ECE Graduate Office will send a notice to the student's Ph. D. Qualifying Exam Committee, confirming the details of the scheduled exam before the end of the semester prior to the exam.
- Four weeks before the assigned examination day, each student will be given the shortlist of papers and will be asked to choose one paper from that list for the exam. On the day of the examination, each student will be examined by the Ph. D. Qualifying Exam Committee.
- The student must email the Ph. D. Qualifying Exam Committee members his/her written report, approved by the Ph. D. Qualifying Exam Committee Chair, ***at least one week prior to the exam date.***
- The Exam Committee Chair must present the outcome of the exam with justifications and recommendations (if necessary) to the Graduate Committee for a vote. The Graduate Committee will formulate a recommendation on the exam outcome, and it will bring it to the ECE faculty for a vote.
- The student will be notified of the outcome of the exam before the last day of the semester of the Ph. D. Qualifying Exam.

New Format Qualifying Exam Signup Form

<http://ece.unm.edu/graduate/ece-qualifying-exam-signup---research-based.docx>

	ELECTRICAL & COMPUTER ENGINEERING	<i>ECE Graduate Program</i>
Ph.D. Qualifying Exam Proposal <small>Rev 11/2019</small>		
INSTRUCTIONS		
1. Before Exam - Four (4) weeks before the end of the semester prior to the Ph.D. qualifying exam semester, student submits page 1 of Qualifying Exam Proposal Form to Graduate Advisement Office. 2. After Exam - Committee Chair records exam results and obtains examining committee member's signatures on page 2 of Qualifying Exam Proposal Form then forwards form to ECE Graduate Advisement Office within two weeks of the examination.		
STUDENT INFORMATION		
Student Name		Date
UNM/Banner ID #		
Emphasis	<input type="checkbox"/> EE	<input type="checkbox"/> CPE
UNM Email		
Phone Number		
Faculty Advisor		
DATE, TIME, AND LOCATION OF PROPOSED EXAM		
Date	Time	Location
EXAMINATION COMMITTEE MEMBERS <i>Please print or type</i>		
Full Name	Email Address	Department
Committee Chair:		
SIGNATURES		
Student:	Date:	
Committee Chair:	Date:	
APPROVAL		
The proposed committee is authorized to conduct the examination announced above, and the student is eligible to take the exam.		
Graduate Program Director:	Date:	

Student Name:		UNM ID:		Date	
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EXAMINATION RESULTS	
We have read written materials and participated in the oral examination. On this basis, we report the student has:	
<input type="checkbox"/> Passed	<input type="checkbox"/> Failed <i>(Please comment below)</i>
Comments:	

SIGNATURES OF THE EXAMING COMMITTEE		
<i>affirming agreement with the examination results above</i>		
Printed Name	Signature	Date
Committee Chair:		

GRADUATE COMMITTEE CONFIRMATION		
<i>affirming agreement with the examination results above</i>		
Printed Name	Signature	Date
Graduate Program Director:		

FACULTY CONFIRMATION		
<i>affirming agreement with the examination results above</i>		
Printed Name	Signature	Date
Department Chair:		

Notes & Summary

- Dates & deadlines determined by ECE will be as flexible as possible this semester (Fall 2020)
- The goal of the new format is to implement an exam that is a better measure of a student's preparation for, and potential success in, the research/dissertation phase of his or her Ph.D. program
- This is a new and untested exam format (at least in ECE at UNM). There will be glitches and problems.
- Keep in mind that ECE is on your side. We want you to succeed.
- So, if problems arise, inform the Graduate Office, your Area Chair, and/or your Faculty Advisor. We will work with you to resolve your issues, as long as you are "keeping up your end of the bargain."

Questions?