



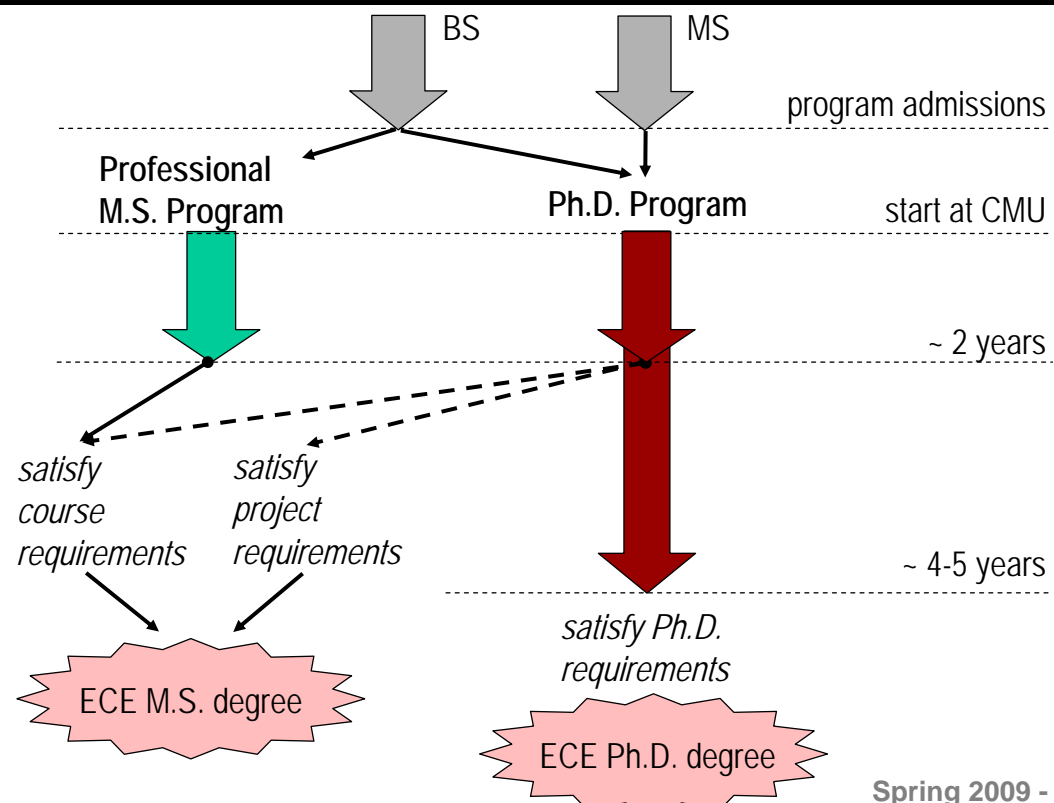
ECE Graduate Program Overview

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Spring 2009 - 1

CMU ECE: About Our Programs and Degrees



Spring 2009 - 2

Ph.D. Degree and M.S. Degree

- You're admitted into the Ph.D. Program
- If you don't have an M.S. already:
 - We want you to stay here and get a Ph.D.
- You can get an M.S. along the way
 - The MS requirements are virtually a subset of the Ph.D.
 - It provides a good milestone toward the Ph.D.

Spring 2009 - 4

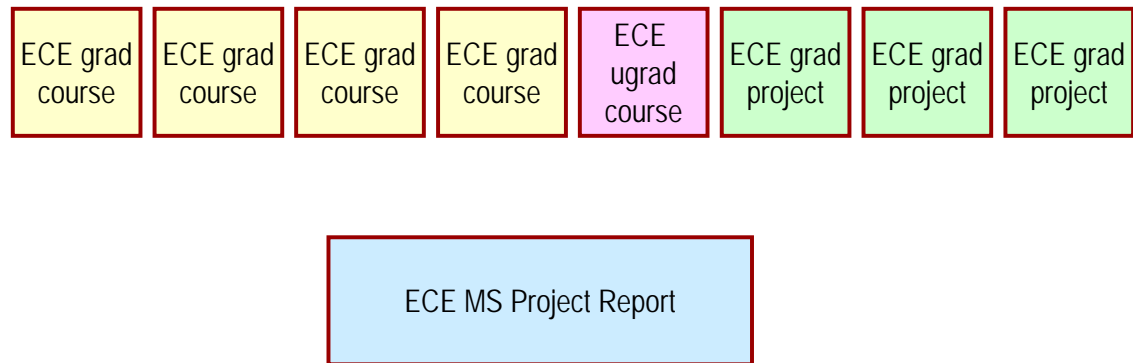
M.S. in ECE Degree (Ph.D. Program)

- **Summary of Course Requirements**
 - 96 units total
 - At least 4 ECE approved graduate courses (48 units) 600 level and above except 18-700 & 18-703
 - At most 1 undergraduate course (12 units) 400 level and below
 - At most 36 units (3 semesters) of project research
 - Can transfer 1 course from outside CMU, not used for other degree approved by the Graduate Studies Committee (full details and description on web)
- **M.S. Project Report**
 - ~40 page research report
 - Approved by advisor and another ECE faculty member

Spring 2009 - 5

M.S. in ECE Degree (Ph.D. Program)

Most likely scenario, in 12-unit chunks:



Spring 2009 - 9

Approved Graduate Courses

graduate courses

- 18-8xx: graduate courses with temporary numbers
- 18-7xx: graduate courses
- 18-6xx: graduate mezzanine courses

undergraduate courses

- 18-5xx: undergraduate capstone design courses
- 18-4xx: senior-level undergraduate
- 18-3xx: junior-level undergraduate
- 18-2xx: sophomore-level undergraduate
- 18-1xx: freshman-level undergraduate

- Any 12-unit ECE graduate course is approved for PhD / MS credit (18-700 and 18-703 can't be used for MS credit)
- Most CS graduate courses (at 700 level or higher) are approved
 - Litmus test is non-project, non-seminar, non-independent study
- Other graduate courses **must** be approved by the GSC

Spring 2009 - 10

Petitions

- You may submit formal petitions to the Graduate Studies Committee (GSC) through the ECE Graduate Office
 - The GSC is a group of about 10 ECE faculty that review the petitions and make the decisions
 - The GSC meets once a month
 - All petitions are due on the first day of the month
 - Petition procedures located on ECE website
- Typical petitions:
 - To count courses that do not appear on the *graduate course list* toward your graduation requirements
 - Transfer credit from other universities

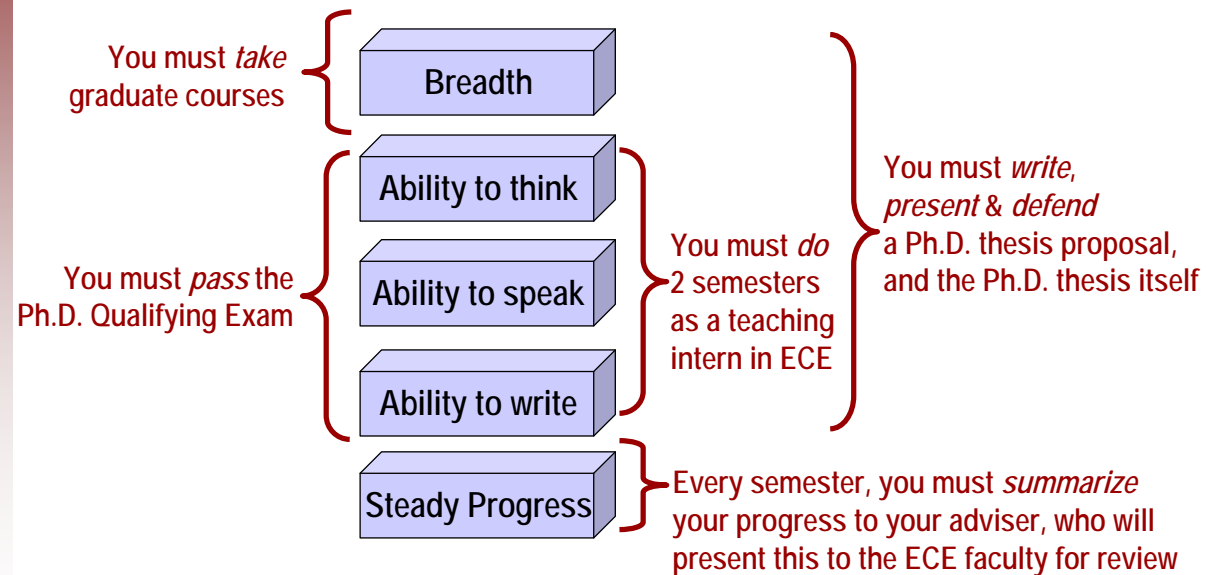
Spring 2009 - 11

Overall Goals for the PhD Process

- What skills *matter* for the PhD?
 - In other words, what skills do we want you to be able to **demonstrate** during your studies at Carnegie Mellon?
- **Breadth**
 - No mandatory portfolio of areas; you demonstrate with graduate courses
- **Ability to think**
 - Logically, clearly, on-your-feet, under-some-pressure
- **Ability to speak**
 - From a prepared talk, and in response to live questioning
- **Ability to write**
 - Always been part of PhD proposal and defense; now part of the Qual, too
- **Ability to demonstrate steady progress**
 - We will monitor and offer feedback, as a dept., every Fall and Spring

Spring 2009 - 12

Overall Goals for the Ph.D.



Spring 2009 - 13

PhD Course Requirement

Course #1 Course #2 Course #3 Course #4 Course #5 Course #6 Course #7 Course #8 8 courses at Carnegie Mellon

If you have a CMU ECE MS degree or no MS degree:

- Total of **8** ECE or related courses
 - At least **6** approved graduate courses
 - At most **2** undergrad courses

Course #1 Course #2 Course #3 Course #4 4 courses at Carnegie Mellon

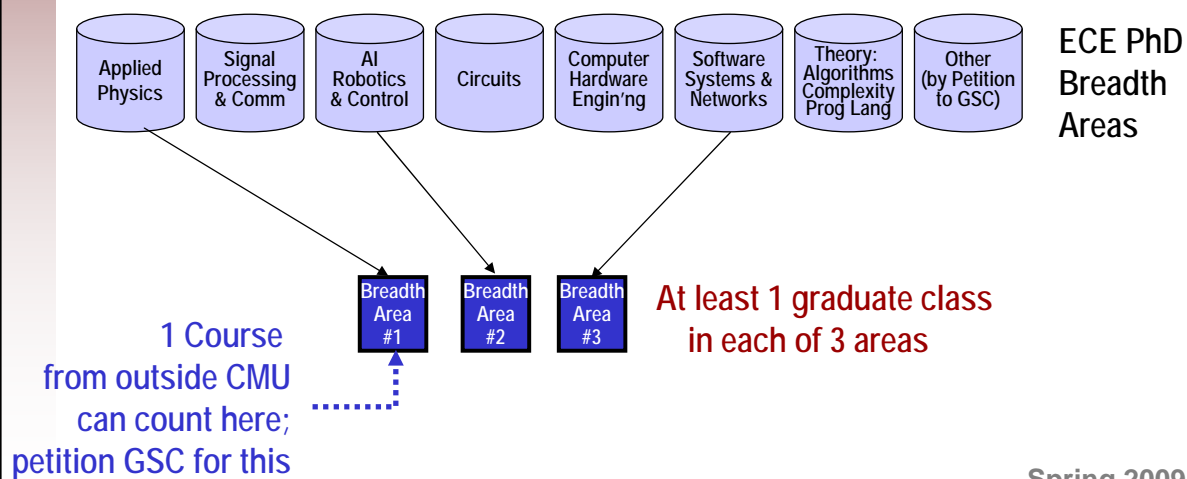
If you do have a MS degree from outside CMU:

- Total of **4** ECE or related courses
 - At least **3** approved graduate courses
 - At most **1** undergrad course

Spring 2009 - 14

PhD Breadth Requirement

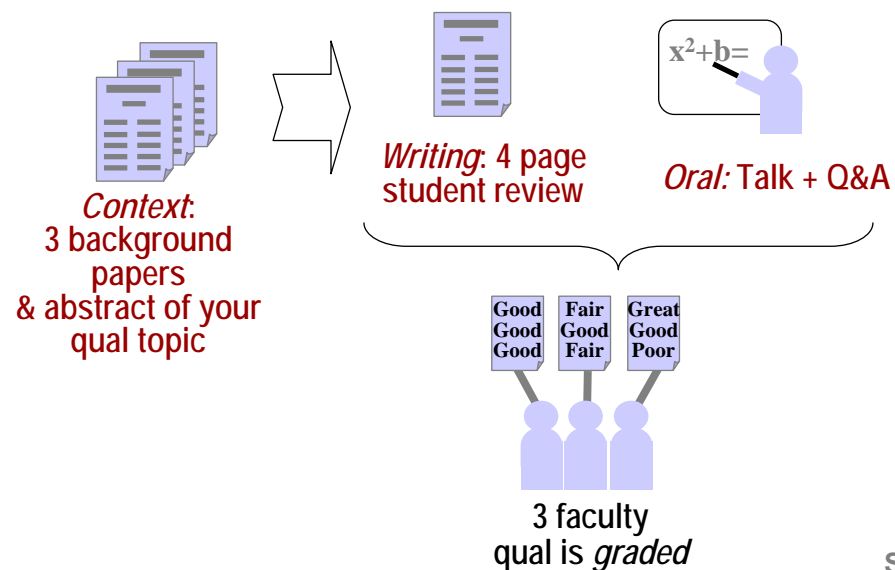
- ECE defines **8** technical areas as *Breadth Areas*
 - You demonstrate breadth with graduate courses in 3 of these approved areas



Spring 2009 - 15

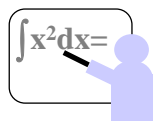
Thinking/Speaking/Writing: the Qual Exam

- Taken by **3rd** semester (entering with MS) or **6th** (entering with BS)
- Two chances
- No need to complete course requirements before taking the Qual



Spring 2009 - 16

PhD Teaching Requirements



- You serve as a Teaching Assistant for 2 semesters
- Non-native speakers of English will be evaluated by Intercultural Communication Center (ICC) for teaching in English skills
- Need at least a “B” average over your 2 teaching assignments
- Your performance matters here; you are not just “putting in time”

Spring 2009 - 18

Remaining Steps to a Ph.D.

- **Ph.D. thesis proposal**
 - Once thesis problem/topic is identified and some initial approaches developed
 - Prepare a concise (25 pages) document that motivates and explains your Ph.D. research plans
 - A committee of at least 4 (at least one from outside ECE, at least two from inside ECE)
 - Results in an informal contract as to what you need to complete to get your Ph.D.
- **PhD thesis and defense**
 - When work is done, write the thesis
 - Same committee
 - Public defense

Spring 2009 - 19

Matching with Advisors

- You have been admitted to the ECE PhD Program
- The faculty names on your admission letter are some potential faculty advisors for your PhD
 - But you can talk to others that you think suit your interests better
- So,
 - listen to the research talks (next)
 - Talk to the faculty (1:45-2:15 area meetings + 2:15-4:00pm meeting times)
 - Talk some more with the faculty (when you come in the Fall)
- We only ask you to narrow your advisor choices by mid-September
- At this point you only need to decide that you'll be coming to CMU-ECE

Spring 2009 - 20