Computer Engineering Graduate Degree Requirements

Chris J. Myers

CE Director
Graduate students that are interested in specializing in CE can:
- Be admitted to ECE and complete the CE track requirements, or
- Be admitted to SoC and complete the CE track requirements.

CE track requirements are identical in either case.

Two graduate degree programs: M.S. and Ph.D..

Within the M.S.:
- Course-only,
- Project, and
- Thesis-based programs.

CE track degrees offered by ECE and SoC are both administered by the joint CE committee, CE director, and CE advisor.
Coursework Option: In this option all the course requirements are fulfilled through graduate courses (no thesis hours). No more than 3 hours can be Independent/Special Studies (CS/ECE 6950).

Project option: Similar to the coursework option with an independent/special study on a project topic required with a project report submitted to the independent/special study advisor. A minimum of 3 hours and maximum of 6 hours of CS/ECE 6950 are allowed.

Thesis option: This option involves research on a thesis area and a written thesis submitted to the graduate school. A minimum of 6 thesis hours are required, and there must be at least 20 classroom hours in the program of study. A maximum of 3 hours of CS/ECE 6950 is permitted only when it is self-contained and not related to the thesis.
The M.S. requires 30 total semester hours of graduate course work (including thesis hours for the thesis option).

There are two required courses:
- CS/ECE 6810 - Computer Architecture
- CS/ECE 6710 - Digital VLSI Design

From the restricted elective list:
- 4 courses must be taken by students doing the coursework option,
- 3 courses must be taken by students doing the project option, and
- 2 courses must be taken by students doing the thesis option.

Additional courses must be approved by the student’s committee.

At least 24 hours must be taken at the University of Utah.
Restricted Elective List (CS/ECE)

- CS/ECE 6720 - Analog Integrated Circuit Design
- CS/ECE 6740 - Computer-Aided Design of Digital Circuits
- CS/ECE 6745 - Testing and Verification of Digital Circuits
- CS/ECE 6750 - Synthesis and Verification of Async. VLSI Systems
- CS/ECE 6770 - Advanced Digital VLSI Systems Design
- CS/ECE 6780 - Embedded System Design
- CS/ECE 6785 - Advanced Embedded System Design
- CS/ECE 6830 - VLSI Architecture
- CS/ECE 7810 - Advanced Architecture
- CS/ECE 7820 - Parallel Architecture
CS 6110 - Formal Methods in System Design
CS 6460 - Operating Systems
CS 6470 - Advanced Topics in Compilation
CS 6480 - Computer Networks
CS 6962 - Algorithms
CS 7460 - Distributed Operating Systems
ECE 5325 - Wireless Communication Systems
ECE 5520 - Digital Communication Systems
ECE 6530 - Digital Signal Processing
ECE 6580 - Implementation of Digital Signal Processing Systems
ECE 7530 - Advanced Digital Signal Processing I
ECE 7531 - Advanced Digital Signal Processing II
A Ph.D. student must either already have an MS degree or complete all of the requirements for a course, project, or thesis-based MS degree in CE. Supervisory committees may require more coursework hours. Must complete at least 14 hours of dissertation research. At least one year of program must be as a full-time student. At least 7 hours of coursework must be completed at the UofU.
1. A minimum GPA of 3.0 on coursework listed on the program of study with no grade lower than C- is required for graduation.

2. The coursework to be taken is decided and must be approved by the student’s supervisory committee.

3. Courses used for an undergraduate degree cannot be counted.

4. A course taken at 5000-level cannot be taken again at 6000-level.

5. A student that has taken one of the required courses during their BS degree at either the 5000 or 6000-level must take an additional restricted elective.

6. Can only register for thesis hours after setting up a committee.

7. Only 2 credits of seminar hours can appear on a Program of Study (i.e, ECE 6900, 6910, 7900, 7910, CS 6930-6944, CS 7930-7944).

8. Must be enrolled with a minimum of 3 credits when defending a thesis.
Supervisory Committee

- M.S. committee has 3 members, Ph.D. committee has 5 members.
- Majority of committee must consist of CE faculty from either ECE or SoC.
- Committee should be formed by the end of the 2nd semester of enrollment in the graduate program (may be revised by petition).
- Any ECE or SoC regular faculty member may serve as a chair.
- Auxiliary faculty may chair supervisory committees if accorded that privilege by the regular faculty and Dean of Graduate School.
- Individuals who are not faculty members may serve on supervisory committees if nominated by the regular faculty on the committee, and endorsed by the CE Committee and CE Director.
- The Dean of the Graduate School must grant final approval of all supervisory committees.
Program of Study

- Students must complete a Program of Study that satisfies all course requirements.
- Approval signatures are to be obtained by the student.
- Submitted to CE advisor by end of the 2nd semester of study.
- After approval of the CE committee, the program of study is submitted to the Graduate School for their approval.
- The program of study must be filed prior to taking a qualifying or comprehensive examination.
Before taking their comprehensive exam, all Ph.D. students must pass a Ph.D. Qualifying Examination.

Before the exam, the student’s supervisory committee will meet (whenever possible) to discuss the Ph.D. candidate, their area of research, and to set the exam questions.

Exam should consist of 3-5 questions that test the candidate’s breadth of CE knowledge as it pertains to the candidate’s likely area of research.

Questions may require the candidate to review a paper, but they are not restricted to only this form.

The Qualifying Exam should consist of a written part and an oral part.

Students must take the written part of the Qualifying Examination during the 3rd semester of study while the oral part may at the discretion of the committee be delayed to be part of the dissertation proposal defense.
Administered by supervisory committee at a time determined by them.

Should be no later than the 3rd semester of study (not counting summers) for M.S. students and 5th semester of study (not counting summers) for Ph.D. students.

Should serve as the defense of the student’s thesis/dissertation proposal as well as to establish competence in their proposed area of research.

Must be completed at least one semester prior to the semester of the thesis/dissertation defense.
Page limit is 10 pages for M.S. students and 15 pages for Ph.D. students.

Choice of format based on the area of research.

Students interested in academic research are encouraged to use the NSF or NIH format including only the technical proposal and the vita sections.

Proposal should be submitted to supervisory committee at least two weeks before the comprehensive exam.

Students must notify CE advisor at least one week before they are going to take the Comprehensive Examination.
For students in the thesis option, the thesis defense is the final exam.

For students in the project option, they must present their project orally in a public forum such as ECE’s Technical Open House.

For students in the non-thesis option, they must fill out a form indicating a class in which they did a project and attach the title and abstract of the report for this project. A passing grade in that class will serve as the passing grade for their final exam.

In all cases, a “Report of the Final Examination” form must be completed and submitted to the Graduate School.
Thesis/Dissertation Defense

- Degrees with a thesis or dissertation must have an oral thesis/dissertation defense conducted by the supervisory committee.
- Passed only if thesis/dissertation research and documentation are of the quality that will bring distinction to the candidate and the CE program.
- Committee may request further work before a final decision is made.
- Students are responsible for thesis/dissertation meeting requirements of the Graduate School for proper format.
Student must provide the CE advisor with the following information at least one week before the date of the thesis/dissertation defense:

- The defense date/time and room,
- A copy of the abstract and title of the thesis/dissertation,
- A vita or resume, and

A “Report of the Final Oral Examination” form will be completed by the CE advisor for approval signatures during the defense, and the CE advisor will submit the form to the Graduate School.
Committee must give preliminary approval of the thesis/dissertation prior to the defense.

Student must provide dissertation to chair at least 3 weeks before the defense, to rest of committee members at least 2 weeks prior.

After successfully defending it, student must obtain approval by having their committee members sign the Supervisory Committee Approval and Final Reading Approval forms.

Student should prepare at least 3 copies of each form on thesis paper.

The forms are submitted to the CE advisor for the CE Director’s signature.

The student must then submit the forms to the Thesis Editor with a draft of the final thesis/dissertation.
Please see: http://www.ce.utah.edu