Electrical Engineering Ph.D. Requirements
Electrical and Computer Engineering Department
University of Colorado at Colorado Springs

1 INTRODUCTION

This manual is intended as a basic guide to Electrical Engineering Ph.D. students, laying out the requirements of the program. Please note that these rules are in addition to the Graduate School rules (See http://web.uccs.edu/gradschl/gradpage.html).

2 ADMISSION

Regular admission to the Ph.D. program requires a 3.3 grade-point-average (GPA) on all previous college work, including both graduate and undergraduate. The Graduate Records Examination (GRE) is required of any student who falls below this average GPA, is not a graduate of an ABET accredited undergraduate program in electrical engineering, or who is a graduate of a foreign university.

Graduates of foreign universities who are applying from outside the USA are required to take the TOEFL exam: A score of 550–600 on the paper-based exam, or of 213–250 on the computer-based exam is required. If the student has completed at least one year full-time academic study at a U.S. institution at the time of application, if English is his or her native language, or if he or she can demonstrate fluency in English in person to the ECE Graduate Program Director, the requirement to take the TOEFL may be waived.

Students not admitted on a regular basis may be admitted on a provisional basis depending on their overall application file, including GPA, GRE, letters of recommendation, etc. Students admitted on a provisional basis are often required to take remedial courses (these are specified in the letter of acceptance). Registration for such remedial courses must commence with the first semester of a student’s program with at least three credits completed per semester until all remedial requirements are satisfied.

3 ACTION CHECKLIST AND TYPICAL TIMELINE FOR THE PH.D. DEGREE

Once accepted the student must:

1. Select an academic advisor and complete a Plan Of Study (POS). The POS must be approved by his or her academic advisor and by the ECE Graduate Program Director. This should be done by the end of the second semester of residence in the Ph.D. program. See section 5.

2. Successfully complete the Ph.D. preliminary examination. See section 7.

3. Complete the coursework specified in his or her POS. He or she must achieve a GPA of 3.33 or above in the first twelve semester-hour credits attempted at UCCS in the Ph.D. program.

4. Form a Ph.D. Advisory Committee. See section 8.


6. Complete the required research and write a dissertation.

7. Final semester timeline:

(a) Notify the ECE department of plans to graduate at the beginning of the semester
(b) Complete diploma card and Application for Admission to Candidacy for an Advanced Degree (available in ECE office) at the beginning of the semester.
(c) Arrange a time for the thesis defense with Advisory Committee members.
(d) Notify the ECE department of the thesis defense date a minimum of one month prior to thesis defense.
(e) Get department dissertation covers and log number from the ECE department.
(f) Submit final draft form of dissertation to Ph.D. Advisory Committee a minimum of two weeks prior to the thesis defense.
(g) Successfully defend the thesis in an oral defense.
(h) Obtain approval from the Advisory Committee Chairman that the dissertation meets all format requirements.
(i) Obtain approval (and signatures) from all Advisory Committee members that the dissertation has acceptable content.
(j) Forward one bound copy of dissertation to the ECE department, one bound copy to each Advisory Committee member, and two unbound copies to the Library by the semester deadline (see note below).

(k) Commencement ceremony is held in May. Students become a graduate the semester they complete all requirements.

Note: All deadlines are given in the Schedule of Deadlines for Graduate Degree Candidates published annually by the UCCS Graduate School.

4 DURATION OF PROGRAM

The completion of the Ph.D. degree should be accomplished in seven years commencing with the beginning of course work. An extension to this time limit will be considered if requested. A student becomes “inactive” by petition or if he or she fails to register for three consecutive semesters. An inactive student must reapply to the program in order to continue studies. An application fee will be charged only if one or more of the following apply:

- Semester of most recent registration was more than six years prior to date of reapplication,
- One or more courses have been taken at another institution subsequent to most recent registration at UCCS,
- Coursework completed more than six years prior to date of reapplication will be applied to the degree.

5 ADVISOR AND PLAN-OF-STUDY

The student should choose an academic advisor and complete a Plan Of Study (POS), with input from his/her advisor, by the end of the second semester of residence in the Ph.D. program.

The academic advisor must be Graduate Faculty of the UCCS Graduate School, but need not be a member of the ECE faculty if approval has been obtained from the ECE Graduate Program Director.

6 COURSE REQUIREMENTS

The section outlines course requirements for the Ph.D. degree in electrical engineering.

E.E. Ph.D. Requirements Manual
For a student entering with a masters degree:
- He or she must complete 30 semester hours of course work.
  - At least 15 semester hours must be ECE courses.
  - At most 9 semester hours may be independent study courses.

For a student entering without a masters degree:
- He or she must complete 60 semester hours of course work.
  - At least 30 semester hours must be ECE courses.
  - At most 15 semester hours may be independent study courses.

In either case:
- Cross-listed courses which are offered at the 500(0)/600(0) levels must be taken at the 600(0) level.
- All course work must be numbered 5000 and above if ECE, or 500(0) and above if non-ECE.
- He or she must complete 30 semester hours of dissertation research (ECE 8000) in addition to course work.
- He or she may not be registered for fewer than five credit hours per fall or spring semester, and may not be registered for more than ten semester hours of dissertation research in any semester.
- Up to 15 semester hours can be transferred from another university (including other universities in the CU system) upon recommendation of the student’s advisor and approval by the Graduate Program Director. Classes transferred cannot have pass/fail grades. In addition a student must have at least two semesters in residence in the Ph.D. program where at least three credits are taken per semester.
- If a student becomes “inactive” he or she must re-apply to the program to continue studies. Course work taken after a student has become inactive and before the Preliminary Examination has been passed may not be counted toward the student’s degree program. A student who has been inactive, has been re-admitted to active status in the program and has not yet passed the Preliminary Examination is required to take the Preliminary Examination at its next offering (whether or not the student’s status remains active).

Acceptable Grades:
- The student must have an overall graduate GPA of 3.0 in order to graduate.
- The student must have a grade of B- or better in all courses applied toward the Ph.D. degree.

7 PRELIMINARY EXAMINATION

Two requirements must be met after entering the Ph.D. program and before attempting the comprehensive examination. The first requirement is that the student pass the preliminary examination, and the second requirement is that the student demonstrate excellence in coursework. These are explained below:

1. The Ph.D. preliminary examination is scheduled each January about the second week. It is closed book and three hours in duration. Old examinations are available in the ECE Department office. For students admitted before June 1, the Ph.D. exam must be taken on the next offering (normally the following January). For students admitted June 1 or after, the Ph.D. exam must be taken no later than its second offering after admission. Should a student be in “inactive” status when the Ph.D. exam is offered, he or she does not need to take the exam at that time. However, upon re-entering active status, the Graduate Program Director may require the student to take the Ph.D. exam at the next
offering, whether or not the student remains in active status. A missed exam counts as a failure. The Ph.D. examination may be attempted twice. If failed twice, the student is no longer in the program. The exam has eight questions, of which the student must satisfactorily complete five. The student should contact the ECE office for the current listing of textbooks which may be used by the student to guide his or her studying for the exam.

2. Before attempting the comprehensive exam, the student must also demonstrate excellence in his or her specialty field. In order to do so, the student must achieve a grade point average of B+ (3.33) or better in the first twelve semester-hour credits attempted in the Ph.D. program.

8 ADVISORY COMMITTEE

The student’s Ph.D. Advisory Committee consists of at least five persons, with the following stipulations:

- All members of the Advisory Committee must be Graduate Faculty or Associate Graduate Faculty of the UCCS Graduate School.
  - The chair of the Advisory Committee must be Graduate Faculty of the UCCS Graduate School.
  - There may be at most one Associate Graduate Faculty of the UCCS Graduate School on the Advisory Committee.
  - Individuals who are not either Graduate Faculty or Associate Graduate Faculty of the UCCS Graduate School may not be voting members of an examination committee.

- The chair of the Advisory Committee must be in the faculty of the ECE department, although the chair need not be the student’s academic advisor. (This provision allows a student who is studying in a closely-related field to EE—such as some areas of physics, mathematics or mechanical and aerospace engineering—to achieve a Ph.D. in EE while having an academic advisor from his or her own specialty field. Such a student must still be admitted to the EE Ph.D. program in the normal way and meet all other requirements for the degree.)

- At least two other members of the Advisory Committee must be ECE faculty, and at least one person on the committee must be faculty from a non-ECE department at UCCS.

- The following table summarizes committee members and their required affiliations.

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<thead>
<tr>
<th>Member</th>
<th>Affiliation</th>
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<tbody>
<tr>
<td>Committee Chair</td>
<td>ECE—Graduate Faculty</td>
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<tr>
<td>Member #2</td>
<td>ECE—Graduate Faculty</td>
</tr>
<tr>
<td>Member #3</td>
<td>ECE—Graduate Faculty</td>
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<tr>
<td>Member #4</td>
<td>Non-ECE—Graduate Faculty</td>
</tr>
<tr>
<td>Member #5</td>
<td>Open—Graduate or Associate Faculty</td>
</tr>
<tr>
<td>Optional Members</td>
<td>Open—Graduate Faculty</td>
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9 COMPREHENSIVE EXAMINATION

The comprehensive examination is a presentation of the student’s chosen research area with a supporting literature search and tentative avenues of approach. It is conducted by the student’s Advisory Committee. This can be taken only after all coursework requirements are completed or in the last semester of course
work if three or fewer credits remain. No more than ten hours of dissertation credit (ECE 8000) may be completed and counted toward the degree requirements before the student passes the comprehensive exam (Dissertation credit-hours in progress the semester in which the student passes the comprehensive exam are not counted in this limit). Once the comprehensive examination is passed, the student is a candidate.

Two semesters must elapse between the time of the comprehensive examination and the graduation date for the student. The semester that the comprehensive examination is taken in counts toward this requirement.

10 DISSERTATION

The dissertation is a written, polished document reporting the results of the student’s investigation into an original area of research. A minimum of 30 semester hours of dissertation credit (ECE 8000) must be taken in conjunction with completion of this requirement. No more than ten dissertation credit hours may be registered for in any one semester.

All Ph.D. dissertations must be written according to a departmentally approved format and enclosed in the department report cover. Each will be assigned a department report number EAS_ECE_xxxx_yy, where xxxx denotes the calendar year and yy denotes the report’s assigned number in the series, e.g., EAS_ECE_2000_12. The number will be assigned by the department after the student’s Advisory Committee has approved the content of the final manuscript and the department has verified that the form of the thesis is in compliance with the department’s format for reports. A bound archive copy of the Ph.D. dissertation will be presented to the department and to each Advisory Committee member by the candidate by the date on which the library is to receive its copy of the work.

11 FINAL ORAL DEFENSE OF THE DISSERTATION

The final oral defense of the dissertation is taken at the completion of the work on the dissertation after the first and second reader have approved its contents. This examination is open to anyone who wishes to attend. A successful candidate must receive the affirmative vote of a majority of the members of the Advisory Committee. In case of failure, the examination may be attempted once more after a period of time determined by the committee.

12 SUBMISSION OF DISSERTATION

1. All dissertations will be submitted by the student directly to the Technical Services Division of the Library after departmental approval is received.
2. Students will be responsible for compliance with all instructions in the UCCS Thesis & Dissertation Manual. Use the Manual, the Gold Checklist, and the Schedule of Deadlines. The thesis is to be in the manuscript style of the IEEE transactions.
3. Dissertations will not be prechecked by the Graduate School. Questions concerning matters not discussed in the UCCS Thesis & Dissertation Manual must be directed to the ECE Department (see approval of “Content and Form,” below).
4. Copies submitted to the Advisory Committee members prior to the final defense should be prepared in final draft format. The committee chairperson will sign a statement of “Approval of Format” (i.e., style of referencing, quality of figures and other text materials) and acknowledge that the final copy is consistent with “acceptable presentation standards of scholarly work in the discipline.” The signature
must be original. This statement will not be bound into the thesis. You must get this signed statement from the ECE office prior to submitting your final dissertation to the Library. The usual “approval page” (pg. 2 of the preliminary pages of the thesis) will be required and will be bound into the thesis.

5. Final copies will be judged acceptable or not based on the requirements stated in the UCCS Thesis & Dissertation Manual and the style designated by the department. If a thesis is not acceptable, corrections must be returned to the Library no later than 5:00 p.m. on the date indicated on the Schedule of Deadlines. If the deadline is missed, the student will be awarded their degree the following semester.

6. An out-of-state student mailing final copies should send them to the Advisory Committee members for final review and the necessary statement of “approval” for the dissertation (pg. 2 of the preliminary pages of the dissertation). This must have been previously approved by the committee.