

ELECTRICAL ENGINEERING - DOCTOR OF PHILOSOPHY (PHD)

The Doctor of Philosophy (PhD) is the terminal degree for those seeking a technical or research career in electrical engineering.

Students typically complete their PhD within 4 to 6 years, depending on whether they enter the program with a master's degree. It is possible for highly qualified students to enter the PhD program directly without a master's degree.

The primary focus of a PhD student is to perform novel research and support their faculty advisor. At the time of admission, PhD students must have a faculty advisor who agrees to accept the student into their research program and mentor their academic progress. Most of our PhD students are supported through research and teaching assistantships, and are also encouraged to apply for their own source of funding. Others are self-funded.

For more information, visit the department's Prospective Students (<https://www.colorado.edu/ecee/academics/graduate-programs/doctor-philosophy/degree-requirements/>) webpage.

Requirements

Course Requirements

- A minimum of 30 credit hours of engineering, math and science courses numbered 5000 or above (at least 18 of these must be in technical ECEN; none can be TLEN/CYBR, EMEN or ATLS) with a minimum of 3.00 GPA (with no lower than a B- in any single course).
- 30 credit hours of dissertation credit are required for the degree.
- A maximum of 21 credit hours may be transferred from another accredited institution and applied toward a PhD degree if approved by the graduate committee of the department and the Graduate School.
- All courses taken for the master's degree at the 5000 level or above at the University of Colorado may be applied toward the doctoral degree at the university, however, the technical requirements in the first bullet point still apply.

Preliminary Examination

PhD students must take a preliminary examination, generally completed within their first two years. They are given two chances to pass. If a student takes an exam in one research area on their first attempt and a different area on their second attempt, those comprise their two maximum attempts.

Preliminary exams are given by faculty in respective research groups. Depending on the research area, the exam could consist of oral and written parts, or a literature search and an oral report, or some other form of exam. If a student passes one part on the first attempt, then they need only take and pass the remaining part during their subsequent attempt. The outcome of an exam can also be a conditional pass, in which the student is required to carry out additional activities such as problem solving or taking a course to build foundational knowledge.

Those who do not pass after two attempts can earn a master's degree pending fulfilling the other academic requirements for that program; their tenure in the PhD will be at a close.

Comprehensive Examination

Students must pass an oral comprehensive examination before the student's doctoral committee of five or more graduate faculty members, three of which must be rostered in the ECEE department, chosen by the student and approved by the department and the Graduate School. The oral examination before the committee is based primarily on a written proposal for the thesis research provided by the student to committee members in advance.

PhD Dissertation

Students must write a dissertation based on original research conducted under the supervision of a graduate faculty member. The dissertation must fulfill all Graduate School requirements. After the dissertation is completed, an oral final examination on the dissertation and related topics is conducted by the student's doctoral committee.

Time Limit

All degree requirements must be completed within six years of the date of commencing coursework. Extensions beyond this timeline may be granted via petition to the Graduate College and approval by the ECEE Chair of Graduate Studies.