

# Department of Electrical and Computer Engineering, Graudate

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## Master of Science in Electrical Engineering Degree Program

### Purpose and Goals

The primary purpose of the Electrical Engineering graduate programs is to enhance students' skills in specialized areas and provide opportunities for students to pursue careers in private industry, government research laboratories and design facilities.

The objectives of the program are:

- To produce graduate students who have advanced training in one of the following areas of emphasis in Electrical Engineering: (i) Microelectronics, (ii) Computer Engineering, (iii) Telecommunications and Signal processing, (iv) Energy and Power Systems, (v) Cybersecurity, and (vi) Bioinformatics.
- To produce a significant number of graduates with experience in research.
- To prepare outstanding students to pursue doctoral degrees.
- To produce post-graduates who have the technical, cognitive and interpersonal skills that will allow them to secure employment within the State of Texas, or in the nation.

## Doctor of Philosophy in Electrical Engineering Degree Program

### Purpose and Goals

The Doctor of Philosophy program in Electrical Engineering is designed to prepare students to be scholars, to develop the students' capacities to understand issues and problems at the frontiers of knowledge, and to make significant contributions to that knowledge. The PhD program's overall educational goals are to provide doctoral training in Electrical Engineering research, to develop new knowledge in engineering, and to disseminate the knowledge gained.

The educational objectives of the PhD in Electrical Engineering program are:

1. To produce competent engineering researchers who can communicate new and innovative research findings to engineers and scientists,
2. To train engineers who are well versed in the general body of knowledge in Electrical Engineering,
3. To produce researchers with specialized knowledge in Electrical Engineering, and
4. To increase the number of Electrical Engineering doctorates.

### Student Advisement and Supervision

The Electrical and Computer Engineering Graduate Program Administrator will serve as the Graduate Advisor of each student upon admission into the PhD program. After the student completes nine hours of doctoral classwork, the student will be required to choose a chairperson of the student's Ph.D. Advisory committee. The student will select the members of the student's PhD committee in consultation with the Graduate Program Administrator and the chairperson of the student Ph.D. committee. The chair of the individual doctoral student's committee is responsible for advising that student for courses taken beyond the first nine credit hours.

### Doctoral Advisory Committee

The Graduate Program Administrator will assist the graduate student in securing an Academic Advisor, who will act as the Chair of the Doctoral Advisory Committee and will be responsible for advising and supervising the student. After the student has successfully completed the qualifying examination, the Chair of the Doctoral Advisory Committee and the student will select the Doctoral Advisory Committee, consisting of five graduate faculty members. One member of the doctoral advisory committee will be chosen from outside the department of Electrical Engineering. The choice of the outside faculty members will be based on the individual student needs and the selected dissertation topic. The chair and the student will follow the procedure established by the Office of Graduate Studies.

The Doctoral Advisory Committee will develop a tentative timetable for completion of all requirements for the degree program; monitor the student's coursework and research; provide advice and feedback to the student; file an Annual Report of the student's progress with the Office of the Dean of the College of Engineering; approve a research topic; supervise the preparation of the research project; uphold the standards of the College and the University; inform the Dean of the College of Engineering, in writing, if a student's performance is inadequate and provide relevant advisory committee recommendations; and formulate and conduct the preliminary and qualifying examinations. The student's Advisory Committee Chair acts as head of the Doctoral Advisory Committee and takes the lead in completing these duties. The procedures published by the Office of Graduate Studies must be followed.

## Graduate Plan of Study

Each doctoral student will be required to file a Graduate Study Plan (GSP) with the College of Engineering before completing 18 semester hours of course work. The GSP outlines the curriculum of study and a timetable to be followed by the doctoral student in meeting the graduate degree requirements. The student prepares the GSP in consultation with the Doctoral Advisory Committee and Office of Graduate Studies guidelines.

## Preliminary Examination

When the student has completed nine (9) semester hours of coursework or two semesters in the doctoral program, he or she will be required to take a preliminary examination. The preliminary examination will be taken at the beginning of the second semester of the student's doctoral program. The preliminary examination will be a written test of knowledge in at least three areas of electrical engineering. The student will choose from the following areas: Microelectronics, Computer Networks, Power Engineering, Control Systems, Communications, Digital Systems, Engineering Mathematics, and Signal Processing. The preliminary examination will be prepared and administered by the Graduate Program Administrator and graduate faculty. Students failing any portion of the preliminary examinations must consult with the Graduate Program Administrator to determine the steps to be taken. Two consecutive failures on the examination will result in the student's dismissal from the PhD program.

## Qualifying Examination

A doctoral student will be required to successfully pass a qualifying examination. The qualifying examination consists of a research proposal, written and oral examinations on the student's area of research. The doctoral student must take a qualifying examination by the time he or she has completed 36 semester hours of coursework. The qualifying examination will be prepared and administered by the Graduate Program Administrator and the student's Doctoral Advisory Committee.

The student must pass either unconditionally or conditionally. A conditional pass indicates specific weaknesses in the student's background that must be remedied before degree requirements are completed. All remedies should be completed within a year after the first attempt at passing the Qualifying examination. Two consecutive failures on the examination will result in the student's dismissal from the PhD program. The Graduate Program Administrator will recommend the doctoral students who pass the qualifying examinations to the Dean of the College of Engineering for admission to candidacy.

## Advancement to Candidacy

Following successful completion of the qualifying examinations, it is the student's responsibility to petition for advancement to candidacy. To be advanced to candidacy, students must have completed all of the following requirements and/or procedures:

1. Achieved a cumulative grade-point average of 3.0 or above in program coursework.
2. Successfully passed the preliminary examination.
3. Successfully passed the qualifying examination.

The doctoral student is required to submit the application for advancement to candidacy at least one semester before the doctoral degree is awarded. The admission to graduate study does not imply "advancement to candidacy" for the doctoral degree.

## Doctoral Dissertation

Successful completion of the doctoral dissertation is required. Every doctoral student is required to pass an oral defense of the dissertation project. Two attempts at passing the dissertation defense are permitted. Failure to pass the dissertation defense will result in the student's dismissal from the program.

Having met other requirements for the degree, students who successfully defend their dissertations and complete the submission process will be granted the degree of Doctor of Philosophy in Electrical Engineering. The determination of completion requirements for the Doctor of Philosophy degree in Electrical Engineering is solely the province of the program faculty.

The dissertation will not be recommended for final submission to the Dean of the College of Engineering until it has been successfully defended and approved by at least four members of the student's Doctoral Advisory Committee.

## Transfer of Graduate Courses from Other Universities

A maximum of six (6) units of electrical engineering-related coursework may be transferred from other accredited universities. A minimum grade of "B" is required in any such courses. Transfer credit is granted by petition to, and approval by, the Doctoral Advisory Committee, with final approval by the Dean of the College of Engineering. It is the student's responsibility to initiate the petition and justify the acceptance of the course. Courses presented for transfer credit must be the equivalent of courses in the doctoral program.

## Special Requirements: Residency and Refereed Papers

Every doctoral student will be required to complete, on campus, at least nine (9) months of graduate study beyond the master's degree. The residence requirement is fulfilled through the completion of a full schedule (at least 9 semester hours) of graduate coursework in each of two consecutive semesters (excluding summer months).

Each candidate is required to have submitted at least two papers for publication in refereed journals. The candidate should be the first author of both papers submitted for publication. The papers should be based on the results of the candidate's doctoral research.

## **Good Standing**

PhD students remain in good standing when they maintain a minimum cumulative GPA of 3.0 for graded courses in the doctoral program. Only grades of "B" or better count toward the required course work of the program. If a grade lower than "B" is received in a required course, the course must be retaken. If a second grade lower than "B" is earned, the student will be dismissed from the program but may petition the Graduate Program Administrator and Doctoral Advisory Committee for readmission. After reviewing the petition, the committee may allow readmission under such conditions, as it deems appropriate. A third grade lower than "B" will result in permanent dismissal from the program with no recourse to petition.

## **Time Limit**

A student must complete all requirements for the PhD degree within nine (9) consecutive years after the first date of enrollment in the program. Any exception to this policy requires the approval of the Graduate Program Administrator and the Dean of the College of Engineering.

## **Financial Assistance**

The graduate programs of the Electrical Engineering Department offer a limited number of graduate assistantships to qualified full-time students. Students who receive such an award are required to assist faculty in research projects and/or teach courses in the undergraduate program. Criteria for assignment of master's assistantships include quantitative information (GPA) and qualitative information (undergraduate preparation, publications, and letters of recommendation). Criteria for assignment of doctoral assistantships to new students include quantitative information (graduate GPA and TOEFL scores) and qualitative and/or supplemental information (letters of recommendation, applicant's statement of interest and intent, preparation in the fields of study, academic publications, previous college-level teaching experience, research work in the field, and grant-writing experience). No standardized test scores will be used as the sole criterion for awarding assistantships or for rejecting applicants for assistantships. Student loans are available to graduate students at Prairie View A&M University on the basis of need. For more information about loans and other sources of aid, contact the Office of Student Financial Aid & Scholarships (<https://www.pvamu.edu/faid/>).