Ph.D. in Electrical Engineering and Computer Science

Daytona Beach Program Requirements

Graduate Mathematics Course	3
Electives	15
Dissertation	24
Total Credits	**42**

Program Details

The Ph.D. in Electrical Engineering and Computer Science (EE&CS) is a terminal degree program designed to demonstrate a student's mastery in her/his field and ability to perform original research. The degree program is research-oriented and will prepare graduates for careers in research and development in the corporate, government, or academic arenas. Students will be expected to conduct guided independent research culminating in a dissertation that contributes to the body of knowledge in the discipline. Successful students will be self-motivated, have in-depth knowledge, and be creative and critical thinkers.

Degree Requirements

The awarding of the Ph.D. degree signifies an individual's expertise in a field of study and their ability to conduct original research that adds to the state-of-the-art of knowledge in the field. The requirements for the Ph.D. in EE&CS are focused heavily towards enabling and requiring the student to establish, complete, and defend a program of original research.

To earn a PhD in Electrical Engineering and Computer Science, a student is required to:

- Define and complete a plan of study of coursework in the field.
- Pass a qualifying examination to be admitted to degree candidacy.
- Pass a preliminary examination by presenting a dissertation proposal.
- Define and complete a program of original research.
- Prepare and defend a dissertation concerning the research work.

Credit Hour Requirements

Students entering the program with a Master of Science degree shall complete a minimum of 42 credit hours of additional graduate work past the master's to earn the doctorate. Of those 42 credit hours, at least 18 must be coursework and at least 24 must be dissertation. Students entering with a bachelor's degree shall complete at least 72 credit hours of graduate work beyond their baccalaureate degree: at least 48 credit hours of coursework and at least 24 credit hours of dissertation research.

For coursework in the program, at least one course is required to be 500-, 600-, or 700-level mathematics and the remaining must be 500-, 600-, or 700-level courses in the COE or a field closely related to the individual student's research. All students are required to complete a plan of study, approved by the student's advisor and submitted to the Ph.D. Program Coordinator within the first year of enrollment in the program, outlining the courses to be taken in support of their individual research topics. All Ph.D. students are required to maintain a minimum GPA of 3.0 throughout their tenure in the program. Standard course load for a doctoral student is six credit hours per semester, although the student's advisor may permit higher loads.

Students entering the program with a BS may choose to fulfill the requirements of one of the master's programs in the EECS department, thesis or non-thesis option, with the master's degree awarded upon completion of that program's requirements, independent of completion of the doctorate. Those students will be expected to complete nine credit hours per semester during their first year in the program in order to complete required course work and focus on research. Ph.D. program funding will not be available to students until after completion of 30 credits of academic coursework.

Qualifying Examination

All Ph.D. students will be required to demonstrate their aptitude and mastery of the engineering fundamentals, including mathematics, by passing a qualifying examination. The exam will be administered not less than once per year. If a student fails the qualifying exam when first sitting for it, they shall take the exam again at its next offering. Students who fail to pass the qualifying exam within two attempts will be dismissed from the program at the end of the semester containing the second failed attempt. Students who pass the qualifying exam are eligible to schedule the preliminary examination.

The departmental Ph.D. committee will have the authority to administer the qualifying exam. Students will be required to demonstrate mastery of mathematics and EE&CS topical areas. The departmental committee will determine the precise form of the examination.

Dissertation Committee

All doctoral students are required to from a dissertation committee consisting of five members, including a dissertation advisor chosen from among the EECS faculty. The committee must include at least two other EECS faculty members besides the dissertation advisor; at least one committee member must come from outside the department. Qualified non-ERAU personnel and ex-officio members may be appointed to the committee in compliance with university doctoral policies. The dissertation advisor shall serve as chair of the dissertation committee. If the student desires to work with a research advisor from outside the department, that person and the dissertation advisor shall co-advise the student and co-chair the committee. The advisor shall be selected within one year of matriculation, and the committee shall be established within one year of the student's passing the qualifying examination.

Preliminary Dissertation Examination

The core of the EE&CS Ph.D. is original research conducted by the student under the guidance of the dissertation committee. Within one year after completing the qualifying exam, each student is required to pass a preliminary dissertation examination. The student will prepare a written research proposal outlining the proposed topic of research, a review of literature, an outline of the proposed approach, an estimate of resources required, and a schedule of milestones and events. The student will then orally defend this proposal before the dissertation committee.

The preliminary exam is passed and the student admitted to Ph.D. candidacy when the dissertation committee accepts and approves the proposal. If the proposal fails to meet the committee's expectations, the student will be given one chance to revise the proposal and retake the preliminary exam. The proposal revision and exam retake must occur within six months of the initial failed examination. Students who fail again to successfully complete the preliminary examination will be dismissed from the program at the end of the semester containing the second failed attempt.

Dissertation and Defense

Each Ph.D. student is required to complete a research program and individually prepare an original dissertation that significantly contributes to state-of-the-art of knowledge in the field. The dissertation shall be prepared according to EECS, COE, and university guidelines. It must contain an outline of the problem and its significance, a review of the relevant literature, a description of the methodology, a presentation of results, and a set of conclusions emphasizing the original contributions made by the work.

Students are required to defend the dissertation subject to EECS, COE, and university oral defense guidelines. A minimum of one semester must elapse between the preliminary exam and the dissertation defense. Students who pass their defense are eligible for degree conferral upon

completion of all other program requirements. Students who fail the defense may be asked to revise their work and re-defend or may be dismissed from the program according to the committee's judgment and recommendations. The dissertation preparation, oral examination, and archival submission must comply with all requirements of appropriate university doctoral policies.

Annual Progress Review

All doctoral students are subject to an annual progress review by the dissertation committee. The committee will review the student's academic and research progress to assess the achievements, provide guidance, and make recommendations for improvement. The advisor shall forward a status report regarding each student's progress to the department Ph.D. committee. Students who demonstrate unsatisfactory progress towards a degree as judged by the dissertation committee, the department committee, or in accordance with policy APD-15 may be recommended to the department chair for dismissal from the program.

Graduate Mathematics Course

At least one course in 500, 600, or 700-level MATH course	3
Total Credits	**3**

Electives

500, 600, or 700-level course in COE or field of study closely related to the student's research	15
Total Credits	**15**

Dissertation

CPSC 800	Dissertation	1-9
or ELEC 800	Dissertation	
Total Credits		**1-9**

Suggested Plan of Study

Year One

Requirements	Credits
Elective	3
MATH Elective	3
Semester Hours	**6**

Requirements	Credits
Elective	3
Elective	3
Semester Hours	**6**

Total Credits

Total Hours for All Requirements: 12

Year Two

Requirements	Credits
Elective	3
ELEC 800 - Dissertation	3
Semester Hours	**6**

Requirements	Credits
Elective	3
ELEC 800 - Dissertation	3
Semester Hours	**6**

Total Credits

Total Hours for All Requirements: 12

Year Three

Requirements	Credits
ELEC 800 - Dissertation	6
Semester Hours	**6**

Requirements	Credits
ELEC 800 - Dissertation	6
Semester Hours	**6**

Total Credits

Total Hours for All Requirements: 12

Year Four

Requirements	Credits
ELEC 800 - Dissertation	6
Semester Hours	**6**

Total Credits

Total Hours for All Requirements: 6