The 2013-2014 Graduate Student Handbook

of the

Department of Electrical and Computer Engineering

Revised: September 5, 2013
Prepared by the ECE Graduate Committee
Website: http://www.eng.fsu.edu/ece/grad/
Contents

1. Introduction to the ECE Graduate Program ........................................................................... 3
2. ECE Graduate Program Personnel ...................................................................................... 4
   ECE Department Chair ........................................................................................................ 4
   ECE Graduate Committee ................................................................................................. 4
   Graduate Program Coordinator ......................................................................................... 4
   Graduate Program Assistant ............................................................................................. 4
   Academic Program Coordinator ....................................................................................... 4
   Office Manager ................................................................................................................... 4
   Office Assistant ................................................................................................................ 5
   Senior Teaching Laboratory Manager ............................................................................. 5
3. ECE Master's Program with Thesis ..................................................................................... 5
   Admissions ............................................................................................................................... 5
   Course Work Requirement .................................................................................................... 6
   Graduate Seminar ................................................................................................................ 6
   Advisor and Supervisory Committee ................................................................................. 6
   Thesis .................................................................................................................................. 6
   Master's Thesis Defense Announcement ......................................................................... 6
   Transfer of Credits ............................................................................................................. 7
4. ECE Master's Program with Non-Thesis .......................................................................... 7
   Admissions ............................................................................................................................ 7
   Course Work Requirement .................................................................................................. 7
   Graduate Seminar Requirement .......................................................................................... 8
   Request for Non-Thesis ....................................................................................................... 8
   Master's Comprehensive Examination .............................................................................. 8
   Area Chairs .......................................................................................................................... 8
   Transfer of Credits ............................................................................................................. 8
5. 4+1 Master's Program ....................................................................................................... 8
   Purpose ................................................................................................................................. 8
   Application Procedure ........................................................................................................ 9
   Admission Requirements .................................................................................................... 9
   Program of Study ................................................................................................................ 9
   Time Limit for Completion of the Combined Degree ......................................................... 10
6. 3+1+1 Master's Special Program ..................................................................................... 10
   For TUT students: ................................................................................................................ 10
   TUT-FSU 3+1+1 BS MS EE Program ................................................................................ 11
   Requirements for TUT Students to enroll at FSU ............................................................... 11
   FSU Responsibilities .......................................................................................................... 11
   Courses to be completed at TUT by 3rd year .................................................................. 11
   Fall 2014 semester at FSU: 15 semester hours of undergraduate EE courses: ............. 11
   Spring 2015 semester at The Florida State University: 16 semester hours of undergraduate EE courses: .................................................................................................................. 12
   Optional Individualized Research Project ........................................................................ 12
   FSU MS in EE Program ..................................................................................................... 12
7. ECE Ph.D. Program ........................................................................................................ 12
   Admissions ........................................................................................................................... 12
   Course Work Requirement ................................................................................................. 13
   Graduate Seminar Requirement ......................................................................................... 13
   Adviser and Supervisory Committee .................................................................................. 14
   PhD Preliminary Examination ......................................................................................... 14
Prospectus Examination.......................................................................................................... 16
Dissertation Defense Announcement...................................................................................... 16
Dissertation & Defense............................................................................................................ 17
Transfer of Credits ................................................................................................................... 17
Journal Paper Submission Requirement................................................................................. 17
Residence Requirement.......................................................................................................... 17
8. Funding Opportunities ......................................................................................................... 17
   Department-Offered Assistantships ........................................................................................ 17
   Description of Department-Offered Assistantships ................................................................. 18
   Award Policy for Department-Offered Assistantships ............................................................. 19
   International Students ............................................................................................................. 19
9. General polices .................................................................................................................... 19
   Minimum Course Load ............................................................................................................ 19
   Course Under Load ................................................................................................................. 20
   Courses Requiring Instructor Approval ................................................................................... 20
   Registering for Undergraduate Coursework ............................................................................ 20
   Final Term Registration ........................................................................................................... 20
   Minimum GPA and Grade Requirement .................................................................................. 20
   Plagiarism ................................................................................................................................ 21
   Thesis / Dissertation Guide ..................................................................................................... 21
   Mailboxes ................................................................................................................................ 21
   Desks ...................................................................................................................................... 21
   Keys ........................................................................................................................................ 21

1. Introduction to the ECE Graduate Program

On behalf of the Department of Electrical & Computer Engineering (ECE), thank you for your interest in the graduate program at the FAMU-FSU College of Engineering. The program offers both a Master of Science in electrical engineering (MSEE) and Doctorate of Philosophy (PhD) in electrical engineering.

This handbook is intended to familiarize graduate students with the operational aspects of the Department of Electrical and Computer Engineering. As such, it serves as an informational guide and a catalog of departmental procedures and requirements that may affect graduate students. The requirements are in addition to those procedures and regulations of the university and college. It is very important that each student read all the information in the university bulletin and on the website.

All new students are required to attend new student orientation held by the Electrical and Computer Engineering Department to become acquainted with the department's instructional activities and research as well as with general regulations. Information from this orientation helps students to select specific research areas and allows them to choose their advisory committee members more responsibly. Dates and times of orientation are announced each semester.

We hope this handbook is useful both to graduate students and faculty. Any inconsistencies or omissions should be brought to the attention of the graduate program coordinator.
2. ECE Graduate Program Personnel

The following is a list of key people involved with the ECE graduate program along with their responsibilities.

**ECE Department Chair**

Dr. Simon Foo is the Chairman of the Electrical and Computer Engineering Department. He provides final decisions on all matters involving resources available to graduate students and final approval on all assistantship and fellowship offers.

**ECE Graduate Committee**

The ECE graduate committee oversees academic policies of the graduate program. Petitions should be made through the student’s advisor to the Chair of this graduate committee. The current Chair of the graduate committee is Dr. Petru Andrei.

**Graduate Program Coordinator**

Dr. Petru Andrei is responsible for decisions concerning admissions. He makes recommendations to the ECE Department Chair regarding teaching assistantship and fellowship offers. He interacts with the Graduate School on many matters including student status, assistantships, and fellowships. He also coordinates graduate student recruitment activities and is in makes recommendations on laboratory teaching assistant and grader assignments.

The following is a list of administrative staff members and their association with the ECE Graduate Program.

**Graduate Program Assistant**

Melissa Jackson (A342 COE, 410-6454) work directly with the Graduate Program Coordinator and Department Chairman regarding all aspects of graduate program administration. In general, she is the first person of contact regarding any questions relating to the graduate program. Among her duties, she is responsible for maintaining all records for the ECE Graduate Program. She announces and distributes official notices of oral exams and thesis and dissertation presentations. She maintains copies of all departmental forms and documents associated with the ECE Graduate Program and updates graduate student files as needed.

**Academic Program Coordinator**

Natalie Bunds (A341, COE, 410-6461) maintains the academic records for all ECE undergraduate students and provides graduate student with the appropriate course numbers for graduate courses as needed. The academic coordinator also handles course drop/adds and grade changes.

**Office Manager**

Eric Sapronetti (A341, COE, 410-6456) maintains the accounting information for all ECE graduate student accounts and makes changes to graduate student payroll.
Office Assistant
Donna Butka (A341, COE 410-6455) handles all purchase orders and travel authorizations for the department.

The following is a list of technical staff members and their association with the ECE Graduate Program.

Senior Teaching Laboratory Manager
Donté Ford performs work of moderate difficulty involving a variety of specialized laboratory procedures and analyses. Responsibilities include modifying and developing laboratory and safety procedures, researching literature related to project and procedures, conducting experiments, recording and analyzing results, troubleshooting instrument problems, performing preventive maintenance on equipment and writing segments of reports. He also assists laboratory personnel with equipment problems and reviews experimental results and procedures for accuracy and efficiency and maintains departmental inventory database.

3. ECE Master's Program with Thesis

The Department offers a thesis program for the Master of Science (MS) degree in Electrical Engineering. Depending on the university, interested students should also consult the FAMU or FSU Graduate Student Handbook.

Admissions
To be considered for admission, candidates must have earned a bachelor of science degree (or equivalent) in electrical engineering, or a closely related discipline, from an Accreditation Board of Engineering and Technology (ABET)-approved program, a grade point average (GPA) of at least 3.0 on a 4.0 scale for all work attempted beyond 60 semester hours of undergraduate study, and a minimum score of 148 points for the quantitative section and 145 points for the verbal section of the GRE test.

International candidates must also pass TOEFL and obtain a minimum of 80 on the internet-based exam or 550 on the paper-based exam or IELTS and obtain a minimum of 6.5 points.

Students with a bachelor's degree in a field other than electrical engineering may be required to complete a department-designated sequence of undergraduate courses with grades of B or better prior to attempting the graduate electrical engineering work.

Students interested in obtaining a teaching assistantship should submit the TA/Grader Application Form as soon as they have been admitted to the program. Students who are not native speakers of English should take the speaking section of the TOELF test (and have a score of 26 points or higher) or the SPEAK test at FSU (and have a score of 45 points or higher) in order to be eligible to apply to for a teaching assistantship. More information about teaching assistantships can be found on the TA/Grader Application Form.

Course Work Requirement
The students must complete a minimum of 30 credit hours of course work to obtain the degree. The 30 credit hours should satisfy:

- 9 credit hours should be from the student's depth area (see Depth Areas for the list of courses in each depth area).
- At least 3 credit hours should consist of a course in advanced mathematics, typically a 5000 level course or above, or a departmental approved substitute.
- At least 6 credit hours of EEL-6971r (MS thesis).
- At least 12 credit hours should be from other letter grade courses.

**Graduate Seminar**

All full-time MS degree candidates are required to enroll in the graduate seminar, EEL 6932r, for each semester that they are enrolled in the graduate program. The details of the seminar are given under "Course Listing".

**Advisor and Supervisory Committee**

Each student must identify an adviser (also called major professor) by the end of the first semester of course work and is required to submit a plan of study by the time he or she has completed 12 credit hours of graduate studies. The plan of study must be approved by the departmental Graduate Coordinator and the student's adviser. The student's adviser also will assist the student in forming the Student's Supervisory Committee (also called thesis committee).

The Supervisory Committee of a master's degree thesis program student must have at least three faculty members from the student's home department with Graduate Faculty Status (GFS). Additional members may be added provided they have GFS in their home department. At least one Tallahassee campus faculty member with GFS must serve on a thesis committee chaired or co-chaired by a Panama City Campus faculty member. One Panama City Campus faculty member with GFS must be annually appointed by the ECE department chair to serve on the ECE graduate committee.

The chair of the Supervisory Committee and must be granted the privilege of chairing master's level thesis committees prior the student defend his or her thesis. Granting of this privilege requires an affirmative majority vote of the GFS faculty of the department and approval by the department chair. Faculty holding this privilege will be reviewed periodically by the department chair. Those not meeting performance expectations may have this privilege revoked upon recommendation of the department chair, an affirmative majority vote of the GFS faculty of the department, and approval of the academic dean.

**Thesis**

All master of science thesis program students must complete a written thesis. Upon completion of the thesis, an oral defense is required, which consists of a public presentation of the student's work to the department and the student's supervisory committee. Students must register for EEL 8976, Master's Thesis Defense, during the semester the student plans to graduate. The thesis should be in the hands of the major professor and the examining committee at least ten days before the date of the oral examination.

**Master's Thesis Defense Announcement**

It is the student's responsibility to post the thesis defense announcement within the department and the College of Engineering at least one week prior to the defense. The announcement should include: thesis title; student's name; student's department; major professor and committee members; date; time and location of the defense.
Transfer of Credits

A maximum of 6 credit hours of graduate courses not counted toward a previous degree from another regionally accredited graduate school may be transferred from another academic institution(s) to the student's current master's degree program, with the approval of the ECE Departmental Graduate Committee. A grade of B or better is required on all transfer credits.

4. ECE Master's Program with Non-Thesis

The Department offers a non-thesis program for the master of science (MS) degree in Electrical Engineering. Depending on the university, interested students should also consult the FAMU or FSU Graduate Student Handbook.

Admissions

To be considered for admission, candidates must have earned a bachelor of science degree (or equivalent) in electrical engineering, or a closely related discipline, from an Accreditation Board of Engineering and Technology (ABET)-approved program, a grade point average (GPA) of at least 3.0 on a 4.0 scale for all work attempted beyond 60 semester hours of undergraduate study, and a minimum score of 148 points for the quantitative section and 145 points for the verbal section of the GRE test.

International candidates must also pass TOEFL and obtain a minimum of 80 on the internet-based exam or 550 on the paper-based exam or IELTS and obtain a minimum of 6.5 points.

Students with a bachelor's degree in a field other than electrical engineering may be required to complete a department-designated sequence of undergraduate courses with grades of B or better prior to attempting the graduate electrical engineering work.

Students interested in obtaining a teaching assistantship should submit the TA/Grader Application Form as soon as they have been admitted to the program. Students who are not native speakers of English should take the speaking section of the TOELF test (and have a score of 26 points or higher) or the SPEAK test at FSU (and have a score of 45 points or higher) in order to be eligible to apply to for a teaching assistantship. More information about teaching assistantships can be found on the TA/Grader Application Form.

Students interested in obtaining a research assistantship should contact individual faculties for funding availabilities.

Course Work Requirement

The students must complete a minimum of 33 credit hours of course work to obtain the degree. The 33 credit hours should satisfy:

- 9 credit hours should be from the student's depth area (see Depth Areas for the list of courses in each depth area).
- At least 3 credit hours should consist of a course in advanced mathematics, typically a 5000 level course or above, or a departmental approved substitute.
- At least 21 credit hours should be from other letter grade courses.
Graduate Seminar Requirement

All full-time MS degree candidates are required to enroll in the graduate seminar, EEL 6932r, for each semester that they are enrolled in the graduate program. The details of the seminar are given under "Course Listing".

Request for Non-Thesis

All students in the non-thesis MS degree program must submit a formal request to obtain an official approval from his/her advisor (if there is one) and the ECE Graduate Coordinator to be exempt from the thesis requirement.

Master's Comprehensive Examination

All students in the non-thesis MS degree program must register for and successfully pass the Master's Comprehensive Exam, EEL 8966. The students must apply to take the examination in the Department of Electrical & Computer Engineering office by the end of the prior semester. A maximum of 2 attempts will be permitted. It consists of a written examination with problems from the following 6 areas: (1) Communications, (2) Digital Systems, (3) Electronics, (4) Signals, Systems, and Controls, (5) Electromagnetic Fields, and (6) Power Systems and Machines. There are 3 problems from each area with a total of 18 problems. To pass the exam the students must select 6 of the 18 problems and obtain a score of at least 60%. Sample previous problems are available upon request from the Graduate Coordinator, Mrs. Melissa Jackson. Information about the material covered by each area can be obtained from the area chairs.

Area Chairs

- Communications: Prof. Bruce Harvey
- Digital Systems: Prof. Uwe Meyer Baese
- Electronics: Prof. Simon Foo
- Signals, Systems, and Controls: Prof. Rodney Roberts
- Electromagnetic Fields, Prof. Bing Kwan
- Power Systems and Machines: Prof. Chris Edrington

Transfer of Credits

A maximum of 6 credit hours of letter-grade graduate coursework may be transferred from another academic institution(s) to the student's current master's degree program, with the approval of the ECE Departmental Graduate Committee. A grade of B or better is required on all transfer credits.

5. 4+1 Master's Program

Purpose

The combined bachelor's/master's dual degree program in electrical engineering provides academically talented students an opportunity to complete both a bachelor's and a master's degree in a shorter time span. This program allows students to double-count graduate courses for both degrees, thus reducing the time it would normally take.
Application Procedure

Electrical and computer engineering students should meet with their academic advisers to determine the appropriateness of entering into the combined BS/MS electrical engineering degree program. Qualified students interested in the combined degree program outside the electrical engineering or computer engineering undergraduate majors should contact the department's Academic Program Coordinator. FAMU and FSU students should normally apply to participate in a combined degree program in their junior year, after completing 75 hours. If accepted, they should take the Graduate Record Examination in the first semester of their senior year. Students should make formal application for admission to graduate school during the last semester of their senior year.

Admission Requirements

A student of senior standing or an upper-division honors student may carry graduate courses for undergraduate credit provided the student:

- has earned either a grade point average (GPA) of 3.2 or better, or has obtained a minimum score of 148 points for the quantitative section and 145 points for the verbal section of the GRE test
- carries a course load of no more than fifteen (15) semester hours; and
- has the advance approval of the dean, the department chair, and the instructor offering the course, prior to registration.

Students must have eligibility certified in the Office of the University Registrar before seeking approval of those listed in item 3). Students who wish to receive graduate credit for such course work must obtain approval of the dean, the department chair, and the instructor offering the course, prior to registration for the graduate course. After approval, up to 12 semester hours may be counted toward a graduate degree at Florida State University, provided the courses have not been counted toward a previous degree. Honors Program students must have completed 60 semester hours of credit (90 credit hours for non-Honors Program students) in their undergraduate programs and earned a minimum 3.0 GPA. Transfer students must have completed a minimum of two semesters (24 hours) and earned a minimum 3.0 GPA. Interested students should contact the department's Academic Program Coordinator for specific information.

Program of Study

The department offers both thesis and non-thesis options for the Master of Science (MS) degree. A minimum of 30 semester hours of course work and thesis are required for the thesis option, and 33 semester hours of course work and master's comprehensive exam are required for the non-thesis option. More information about the core courses, major depth concentrations, and other requirements can be found on the MS: Thesis Program and MS: Non-Thesis Program pages.

Students participating in the combined bachelor's/master's dual degree program in electrical engineering may double-count up to 12 graduate credits hours for both degrees. The credits to be double-counted will be designated as applicable to the graduate program after the student receives the bachelor's degree and matriculates in the Graduate School. A list of approved graduate courses that a student can take at the undergraduate level and may be double-counted is given below.

- EEL 5173: Signal and System Analysis
• EEL 5247: Power Conversion and Control
• EEL 5250: Power Systems Analysis
• EEL 5270: Power System Transients
• EEL 5315: Digital Integrated Circuit Design
• EEL 5317: Power Electronics
• EEL 5333: Solid State Sensors
• EEL 5378: Mixed Signal ICs
• EEL 5416: Sonar
• EEL 5443: Electromagnetics and Optics
• EEL 5454: Optical Sensors
• EEL 5465: Antenna Theory
• EEL 5486: Advanced Electromagnetic Theory
• EEL 5500: Digital Communication Theory
• EEL 5542: Random Processes
• EEL 5547: Radar
• EEL 5563: Optical Fiber Communications
• EEL 5590: Advanced Topics in Communication
• EEL 5591: Wireless Communications
• EEL 5617: Multivariable Control
• EEL 5630: Digital Control Systems
• EEL 5667: Robot Kinematics and Dynamics
• EEL 5707: ASIC Systems Design I
• EEL 5764: Computer System Architecture
• EEL 5784: Computer Network Design and Analysis
• EEL 5812: Advanced Neural Networks
• EEL 5930r: Special Topics in Electrical Engineering

Up to 12 hours of graduate level course work may be taken during the undergraduate program. In order for this graduate level course work to be double counted towards the student's graduate program, a grade of B or better must be earned in the course. The work for the master's degree must be completed within seven years from the time the student first registers for graduate credit. Any graduate work transferred from another institution must have commenced not more than seven years prior to completion of the degree for the credits to be applicable to the master's degree.

Time Limit for Completion of the Combined Degree

Both degrees must be completed within a total of 10 years. The work for the master's degree must be completed within 7 years from the time the student first registers for graduate credit.

6. 3+1+1 Master's Special Program

For Tianjin University of Technology (TUT) students:

• 3 years at TUT.
• 1 year at FSU to complete the TUT BS in EE program (31 credit hours from 11 courses to be transferred back to TUT to receive BS degree from TUT).
• Additional 1 year at FSU to complete FSU MS in EE Program.
TUT-FSU 3+1+1 BS MS EE Program

- First intake of TUT students in Fall 2014.
- For the 2014-15 academic year, the deadline for application is April 12, 2014.
- Notification by April 19. Fees must be paid by April 26, 2014.
- Up to 10 TUT students will be accepted.

Requirements for TUT Students to enroll at FSU

Internet based TOEFL (IBTOEFL): 80; Paper based TOEFL: 550; International English Language Testing System (IELTS): 6.5

TUT Students’ Responsibilities

- $29,169 program fee (additional $3,000 fee for students who choose the optional Individualized Research Project)
- SEVIS fee
- Visa application fee for F-1 visa
- Round trip airfare to US with arrival in Tallahassee, Florida
- Medical insurance meeting The Florida State University requirements for both semesters
- Textbooks for classes
- Personal costs throughout stay (toiletries, entertainment)
- Food for break periods during Thanksgiving weekend, winter and spring break (dining hall is closed)

FSU Responsibilities

- Room and board in private residence hall next to campus or on FSU campus for fall and spring semesters depending on space
- 31 credit hours in Department of Electrical and Computer Engineering
- Optional individualized research experience in one of the participating research groups (for students who choose the optional Individualized Research Project)
- Lab fees for appropriate courses
- The Florida State University ID Card
- The Florida State University transcript (upon Program completion)
- Group pick up at Tallahassee Airport
- Peer Mentors for academic, social and cultural support
- Ongoing support from Center for Global Engagement Staff

Courses to be completed at TUT by 3rd year

The following courses must be completed at the Tianjin University of Technology prior to enrollment in this Special Academic Program:

- Electronics
- Electromagnetics
- Digital Logic
- Microprocessors

Fall 2014 semester at FSU: 15 semester hours of undergraduate EE courses:

- Undergraduate technical electives (3 hrs) – see list [1]
- Two Graduate electives (6 hrs) – see list [2]
• EEL-3216 Fundamentals of Power Systems (3 hrs)
• EEL-4911C Senior Design Project I (3 hrs)

Spring 2015 semester at The Florida State University: 16 semester hours of undergraduate EE courses:

• Two Undergraduate technical electives (6 hrs) – see list [1]
• Two Graduate electives (6 hrs) – see list [2]
• EEL-4217 Power Systems Lab (1 hr)
• EEL-4915C Senior Design Project II (3 hrs) or EEL-4905 Directed Individual Study (3 hrs)

[1] A list of undergraduate technical electives available can be found in departmental web link:
http://www.eng.fsu.edu/ece/undergrad/electives.html

[2] A list of graduate electives available can be found in departmental web links:
http://www.eng.fsu.edu/ece/grad/courses.html

Optional Individualized Research Project

Through a Directed Individual Study (EEL 4905) course students will work with professors from CAPS, AME, HPMI, NHMFL, etc.

Potential research topics include:

• Power Systems, Electric Machines, Real Time Digital Simulator (RTDS)
• Power Electronics and hybrid electric vehicles
• Energy: Renewable energy, energy storage, batteries, fuel cells, energy materials, modeling and simulation, smart grids

FSU MS in EE Program

• TUT students take GRE and apply for FSU Graduate School admission in Spring 2015.
• Must have GPA >= 3.0 and GRE scores (verbal 148 and quantitative 145) for admission.
• Up to 12 credit hours of undergraduate courses (grades B or better) may count towards the MS in EE degree.

7. ECE Ph.D. Program

The Department offers a Doctor of Philosophy (PhD) degree in Electrical Engineering. Depending on the university, interested students should also consult the FAMU or FSU Graduate Student Handbook.

Admissions

To be considered for admission, candidates must have earned a bachelor of science or a master degree (or equivalent) in electrical engineering, or in a closely related discipline, from an Accreditation Board of Engineering and Technology (ABET)-approved program, a grade point average (GPA) of at least 3.3 on a 4.0 scale on all baccalaureate course work and any graduate work attempted, and a minimum score of 151 points for the quantitative section and 145 points for the verbal section of the GRE test.
International candidates must also pass TOEFL and obtain a minimum of 80 on the internet-based exam or 550 on the paper-based exam or IELTS and obtain a minimum of 6.5 points.

Students with a bachelor's degree in a field other than electrical engineering may be required to complete a department-designated sequence of undergraduate courses with grades of B or better prior to attempting the graduate electrical engineering work.

Students interested in obtaining a teaching assistantship should submit the TA/Grader Application Form as soon as they have been admitted to the program. Students who are not native speakers of English should take the speaking section of the TOELF test (and have a score of 26 points or higher) or the SPEAK test at FSU (and have a score of 45 points or higher) in order to be eligible to apply to for a teaching assistantship. More information about teaching assistantships can be found on the TA/Grader Application Form.

Course Work Requirement

The course work requirement depends on the previous degree obtained by the student. Thus, we distinguish 5 tracks:

- **BS-to-PhD**: if the student has a BS degree in EE or related areas.
- **MS/EE-to-PhD**: if the student has a MS degree in electrical engineering or equivalent.
- **MS-to-PhD**: if the student has a MS degree in Physics, Mathematics, or other Engineering Fields.
- **MS/Thesis-to-PhD**: if the student has a MS degree in EE from the FAMU-FSU College of Engineering and has graduated with the thesis option.
- **MS/NonThesis-to-PhD**: if the student has a MS degree in EE from the FAMU-FSU College of Engineering and has graduated with the non-thesis option.

The default track for students enrolling in the PhD program is BS-to-PhD. PhD students that want to follow a different track need to fill in PhD Track Approval Form at the beginning of their program. The number of credits required for each of the 5 tracks is summarized in the table below:

<table>
<thead>
<tr>
<th>from: to:</th>
<th>BS PhD</th>
<th>MS/EE PhD</th>
<th>MS PhD</th>
<th>MS/Thesis PhD</th>
<th>MS/NonThesis PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core courses</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Electives (could be inside or outside department)</td>
<td>18</td>
<td>3</td>
<td>9*</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Supervised research</td>
<td></td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Dissertation hours</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>TOTAL</td>
<td>51</td>
<td>39</td>
<td>45</td>
<td>30</td>
<td>27</td>
</tr>
</tbody>
</table>

*Up to 6 credit hours can be 4000 level courses.

The core courses are defined by one of the Depth Area courses selected by the student.

Graduate Seminar Requirement

All full-time PhD candidates are required to enroll in the graduate seminar, EEL 6932r, for each semester that they are enrolled in the graduate program.
In addition, all the PhD candidates need to make at least one oral presentation about their research in the Graduate Seminar, after passing the PhD Preliminary Examination and before graduation.

**Adviser and Supervisory Committee**

The Graduate Coordinator is by default the initial adviser of all incoming graduate students, however, students are strongly encouraged to select another adviser among the current faculties as soon as they arrive in the ECE Department by filling in the Adviser Form. The student should be in contact with the adviser on a regular basis and all the decisions related to the course work and the plan of studies development of the student should be approved by the adviser. The student's adviser also will assist the student in forming the Student's Supervisory Committee (also called dissertation committee) by the end of the first year of studies.

The Supervisory Committee of a doctoral's degree thesis program student must have at least at least four members with Graduate Faculty Status (GFS). Three of the four members must be faculty members from the student's home department. The fourth member, the University Representative, must be a tenured member of the faculty holding GFS from outside the ECE department.

The chair of the Supervisory Committee must have experience in chairing a master's thesis committee or serving on a doctoral dissertation committee prior to earning the privilege of chairing a dissertation committee. Granting of this privilege requires an affirmative majority vote of the GFS faculty of the department and approval by the department chair. Faculty holding this privilege will be reviewed periodically by the department chair. Those not meeting performance expectations may have this privilege revoked upon recommendation of the department chair, an affirmative majority vote of the GFS faculty of the department, and approval of the academic dean. FSU Panama City Campus faculty with GFS cannot serve as a chair of a doctoral dissertation committee.

**PhD Preliminary Examination**

The Preliminary Examination is the final requirement for doctoral candidacy. This exam is taken over a five-week period. It must be successfully completed by the student's fourth semester (for the BS-to-PhD track), or third semester (for all the other tracks). The student is allowed to retake the exam only once.

In the semester the student intends to take the Preliminary Examination, he/she needs to register for the 0-credit hour EEL 8964 (Prelim Exam). This registration must be done only once.

In preparing for the Preliminary Examination, the student shall present to the committee an approximately 40-page research review report demonstrating an understanding of the theoretical framework in the area of research based on an in-depth literature review. In demonstrating an understanding of the literature, the student must include a discussion that identifies the knowledge gaps in their research area. Upon submission of the research review report, the committee will respond to the student with questions based on the literature review and research area. The following is a schedule of events for the successful completion of the Preliminary Examination:

- The student must make arrangements with the adviser to schedule a five-week time period for the examination. The examination committee should contain at least three faculties with GFS status from the ECE Department.
• With the consultation of the adviser, the student will submit a research review report to the examination committee. This document should abide by the format of each university's PhD thesis and the topic should be determined by the students and major adviser. The student is encouraged to submit the research review report by the middle of the semester for which he/her registered for the Preliminary Examination. The student should abide by the IEEE plagiarism policy.
• The committee will submit written questions to the adviser for collection by the student two weeks after submission of the research review report. These questions will relate to the research review report.
• The student will have two weeks to develop written responses to the questions in preparation of the oral exam. These responses will be submitted to the adviser, who will then distribute the responses to the committee members. The student should submit a complete bound set of answers to each committee member.
• The oral examination will be held within one week of submission of the written responses. This examination will be primarily related to the research area and the student's written responses. Appropriate related fundamental concepts may also be covered.
• Pass/fail is determined on the combined written and oral responses to committee questions. A majority of committee votes and a pass vote by the committee chair is required to pass.
• After the examination is completed the Preliminary Examination Report Form should be filled and submitted to the ECE Graduate Coordinator. A student who passes the examination will be recognized as a candidate for the PhD Degree.
Prospectus Examination

After passing the PhD Preliminary Examination, the student should pass the Prospectus Examination. This examination is usually passed by the end of the 3rd year and needs to take place at least 8 months before the graduation date. The student must submit a Prospectus Examination Application/Approval Form to the ECE Graduate Committee. The student’s advisory committee administers this exam, which may be in the form or a written or a combination of written and oral examination. The content and scope of the exam are at the discretion of the committee. The Prospectus Examination represents the defense of the Dissertation Proposal.

Dissertation Defense Announcement

It is the student's responsibility to post the dissertation defense announcement within the department and the College of Engineering at least 2 weeks prior to the defense. The announcement should include: dissertation title; student's name; student's department; major professor and committee members; date; time and location of the defense. Academic courtesy requires that the dissertation be submitted to each member of the supervisory committee at least 4 weeks before the date of the oral examination.
Dissertation & Defense

The Ph.D. dissertation must be an achievement in original research constituting a significant contribution to knowledge and represent a substantial scholarly effort on the part of the student. It is the responsibility of the major professor to supervise the preparation of the prospectus and the dissertation. The manuscript must be prepared according to the style and form prescribed by the department and must conform to the University requirements regarding format.

The student must submit a PhD Presentation & Defense Application/Approval Form to the ECE Graduate Committee. Please refer to the Graduate Student Handbook from your university for further details.

The defense of the dissertation will be oral. All committee members and the student must attend the entire defense in real time, either by being physically present or participating via distance technology.

Transfer of Credits

A maximum of 27 credit hours of graduate courses not counted toward a previous degree from another regionally accredited graduate school may be transferred from another academic institution(s) to the student's current doctoral degree program, with the approval of the ECE Departmental Graduate Committee. A grade of "B" or better is required on all transfer credits.

Journal Paper Submission Requirement

All PhD students are required to publish, or have accepted for publication at least one refereed article to a journal in their field of interest before their graduation will be approved.

Residence Requirement

After completing 30 credit hours of graduate coursework the student must continuously be enrolled for a minimum of 24 credit hours during at least one consecutive 12-month period (this is called the residency requirement).

8. Funding Opportunities

Department-Offered Assistantships

The ECE Department has limited funding resources for the graduate students. The Department uses two different mechanisms for funding the students:

- Teaching assistantships
- Research assistantships

Teaching assistantships are usually offered at the beginning of each semester; they are recommended by the Graduate Committee and approved by the Department Chair. Research assistantships are offered by faculty members, and the funding commitment belongs to individual faculties. Students interested in research assistantships should contact directly the faculty members and not the Graduate Committee. Please note that the Department is not required to sustain the support if the faculty member withdraws support.

All the assistantship is contingent upon satisfactory performance and progress towards the MS or PhD degrees. In addition to financial support from within the department, there are also
various fellowships available from the College of Engineering, the university, industry, philanthropic organizations, and from several U.S. government agencies. Information is available through the graduate program office or from the Graduate School office. Many of these fellowships are restricted to U.S. citizens.

Please note the following additional information:

- Students are encouraged to work with faculty on sponsored research projects.
- Continuation of assistantships and fellowships is contingent upon satisfactory academic performance, as well as satisfactory performance of assigned duties associated with the assistantship.
- Some assistantships are available in the summer but are not guaranteed. Efforts will be made to distribute summer support equitably, based on needs of the department and the qualification and seniority of students.
- Each year, the department establishes fixed pay rates for state-supported assistantships. The pay rates are a function of the type of assistantship, the number of hours per week assigned, and whether the student is a Master's or Ph.D. candidate. Rates for externally funded assistantships are at the discretion of the individual faculty providing support.
- If the department has committed an assistantship to a student at a particular biweekly rate, and a faculty researcher offers the student partial support, the Department reserves the right to reduce the level of support from state funds so as to maintain the same total biweekly or semester rate. (This reduction of state funding may be necessary due to overall budgetary constraints of the Department.)
- Individual faculty members are not empowered to offer teaching assistantships or grading positions to graduate students. This decision is determined by the department chairman.
- The department maintains a list of all current students who have been awarded an assistantship by the department and of all non-supported students who have requested assistantship support. Faculty researchers will normally review this list and consult with the Graduate Program Coordinator before committing assistantship support to a student.

**Description of Department-Offered Assistantships**

There are three types of department-offered assistantships:

- Graduate Laboratory Teaching Assistantship (GLTA)
- Graduate Grading Teaching Assistantship (GGTA)
- Graduate Special Teaching Assistantship (GSTA)

A GLTA assignment is made to a regular laboratory section that requires students to meet for a specified 2 or 3 hour time slot on a weekly basis. Recipients of GLTAs are expected to prepare and present lab lecture and pre-lab materials, assist students in conducting the laboratory, and collect and grade lab reports.

A GGTA assignment is made to a regular lecture section for the purpose of grading student homework and other assignments. The GGTA is not expected to meet with students except as to explain the grading of a particular assignment when needed.
A GSTA assignment can be made for a variety of reasons. The GSTA recipient is assigned to a particular faculty member and is responsible for assisting the faculty member in executing one or more courses.

The Graduate Program Coordinator is responsible for determining assistantships and is the point of contact for faculty wishing to request graduate student positions.

A more detailed of the Department-Offered Assistantships can be found in the Graduate Teaching Assistant Handbook (Guidelines and Regulations).

**Award Policy for Department-Offered Assistantships**

The Graduate Program Coordinator in charge of making assistantships assigns graduate students to departmental-offered assistantships. The following priority list is used in making assignments:

1. Students who have a financial commitment in writing from the department up to the amount of that commitment.
2. Doctoral students are given priority over master's students.
3. Students whose focus area indicates a good match for a position

Complete application information is available from the Graduate Program Assistant. Please do not contact the Graduate Program Coordinator for this information.

**International Students**

International students willing to apply for teaching assistantships should first take the speaking section of the TOEFL and get at least 26 points in order to be eligible for a TA position. International students who have not obtained 26 points on the speaking section of the TOEFL might be admitted in the MS or PhD Program but they cannot be awarded a teaching assistantship. In this case the student can either take the speaking section of the TOEFL while they are enrolled in the Program or pass the FSU-SPEAK test in order to become eligible for a TA position. These are a university-wide requirements and the Department cannot waive them.

**9. General polices**

All ECE graduate students must also complete and keep up to date the Graduate Student Profile Form, available from the Graduate Program Assistant. Registration is not complete without completing the information on this form. This form is the starting point for student records in the department.

**Minimum Course Load**

All the students supported by the department must register for at least 9 credit hours. Students supported on a university fellowship or assistantship (Presidential, Research, McKnight, Auzenne, etc) may be required to register for 12 credit hours and should consult the department for details.
Course Under Load

Supported students may register for less than nine hours only with the approval of their faculty advisor and the Graduate Program Coordinator. International students should consult the Global Center or the graduate studies office at either university before enrolling for less than nine hours.

Courses Requiring Instructor Approval

The following courses require instructor approval prior to registration and must be requested during the academic advisement period. Course request forms are available online and in the main office.

- EEL 5905 - Directed Individual Study (DIS)
- EEL 5910 - Supervised Research (SR)
- EEL 5971 - Thesis
- EEL 6905 - Directed Individual Study (DIS)
- EEL 6980 - Dissertation

Registering for Undergraduate Coursework

Graduate students may take a maximum of 6 credit hours of undergraduate coursework (courses numbered 1000 - 4999) only with the approval of their faculty advisor and the Graduate Program Coordinator. The course must be substantially related to the student's degree program or part of a department mandated course of study.

Final Term Registration

Students need to register for thesis or dissertation in their final term even if they have satisfied the thesis or dissertation credit requirement for their degree. Florida A & M students must register for at least one credit hour in their final term. Florida State students must register 2 credit hours if they are a MS student and 3 credit hours if they are a PhD student.

Minimum GPA and Grade Requirement

Students are required to maintain a cumulative 3.0 GPA. The department also limits the number of "C" grades a student may earn (to two) before they are required to repeat a course.

A student whose cumulative GPA falls below a 3.00 at the end of a term will be considered "not in good standing" and will be placed on academic probation. A registration stop will be placed on the student's record until they have met with their advisor and submitted a revised plan of study to the Graduate Program Coordinator.

If the student does not raise their GPA by the end of the next term they will be dismissed from the graduate program.

The student's faculty advisor may petition the graduate committee for reinstatement. The faculty advisor must submit written justification for granting an exception. If the Graduate Committee accepts the petition, the student will be reinstated under academic probation. However, under no circumstance will a student be allowed more than one additional term of academic probation.
Plagiarism

Graduate students are responsible for holding high standards of conduct, including the avoidance of plagiarism. In general, students that have committed acts of plagiarism will be immediately expelled from the graduate program. Other penalties will include the loss of any financial support.

Thesis / Dissertation Guide

Each university has a guideline and procedures for preparation of thesis and dissertations. The guidelines and procedures should be read by every student before writing a thesis or dissertation. You may also contact the graduate school at either university for specific instructions.

Mailboxes

Each student will be assigned a mailbox. Mailboxes should be checked regularly for mail and other informational items. The graduate student mailboxes are located in the ECE main office.

Desks

It is the goal of the Department to provide a desk for each graduate student employed by the department. However, due to the limited available space, it may not always be possible to accommodate each student. Therefore, a priority system is used which first assigns a desk to each graduate assistant and graduate fellow, and then allocates desks to as many other students as possible, based on seniority. New graduate students should see their major advisor concerning a desk assignment.

Note: Study facilities for graduate students are intended solely for the purpose of studying and, in some cases, interfacing with students during office hours. They are not to be used for socializing or temporary housing. Students abusing these privileges will forfeit them.

Keys

Each graduate student who is assigned a desk will be given a key to his/her office. Keys for labs and classrooms are available for students who have teaching responsibilities. See the Office Manager in COE A341 for assignment of keys.