

# 2009 – 2010 ECE GRADUATE HANDBOOK

## **SCHOOL of ELECTRICAL and COMPUTER ENGINEERING GEORGIA INSTITUTE of TECHNOLOGY**

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The *ECE Graduate Handbook* is a web-based document available on-line through the ECE World-Wide-Web server. It can be accessed from any WWW client at

[http://www.ece.gatech.edu/academics/graduate/internal/graduate/current\\_grad\\_handbook.pdf](http://www.ece.gatech.edu/academics/graduate/internal/graduate/current_grad_handbook.pdf)

Some of the information included in this handbook is derived from the Georgia Institute of Technology General Catalog, which can be accessed at <http://www.catalog.gatech.edu>

Individuals with disabilities, who wish to acquire this publication in an alternate format, should contact the Graduate Affairs Office of the School of Electrical and Computer Engineering at (404) 894-2900 or at <http://www.ece.gatech.edu/academics/graduate/contact.html>.

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# INTRODUCTION

## Purpose of this Handbook

The administrative and academic units of Georgia Institute of Technology endeavor to provide policy and procedural information as well as the personal guidance needed by students to successfully complete degree programs at Tech. The ECE Graduate Handbook provides information about ECE's graduate degree programs as well as the policies and procedures of the School. Its purpose is to familiarize ECE graduate students with degree program requirements, policies, procedures, and the resources available to students through the ECE Graduate Affairs Office and other Georgia Tech administrative offices.

This manual is not intended to be an exhaustive set of rules. The policies and procedures of the Board of Regents of the University System of Georgia, as well as those issued by the central administration of the Georgia Institute of Technology, supersede the information contained in this document.

It is the responsibility of each student to be familiar with the information in this manual and the Georgia Institute of Technology general catalog. The administrative staffs of the ECE Graduate Affairs Office, the Georgia Tech Registrar's Office and the Graduate Studies – VPR office are additional sources of information regarding departmental, institute and university system policies and regulations.

The Georgia Institute of Technology General Catalog is a web-based document, located at:

<http://www.catalog.gatech.edu/>

All ECE graduate students should familiarize themselves with the information provided in the General Catalog, paying specific attention to the “Information for Graduate Students” (<http://www.catalog.gatech.edu/students/grad/index.php>) and “Rules and Regulations” (<http://www.catalog.gatech.edu/genregulations/>) sections for valuable procedural and policy information.

## A Welcome from the Chair

### **Georgia Tech School of Electrical and Computer Engineering**

Welcome to the School of Electrical and Computer Engineering! Your admission to the School is a clear indication that you are in an elite group of the very best engineering students in the nation. There is no question that you have the capability and potential to succeed at Georgia Tech and in your subsequent professional career. It is the goal of the School's faculty and staff to assist you in realizing your potential.

Georgia Tech's School of Electrical and Computer Engineering is one of the largest such schools, annually being one of the leading producers of electrical engineering and computer engineering graduates. There are some obvious size-related compromises in student-faculty relationships compared to smaller schools, where students frequently have the same instructor for several subjects. On the other hand, because of our size, we can offer an unmatched richness and diversity of educational experiences. The School offers courses and programs across the breadth and spectrum of electrical and computer engineering. The School's curricula are specifically designed to enable you to tailor your programs to suit your individual needs by selecting appropriate electives, both from electrical and computer engineering course offerings and from courses available from other units of Georgia Tech.

Your program of studies will provide you with technical preparation for a professional career. Equally important is the matter of professional ethics, which is implicitly and explicitly woven throughout your program of studies. Our Faculty Credo and our student Honor Code are presented on the following pages. It is essential that you understand, fully endorse, and commit to the ethical practice of your profession.

We are pleased that you have chosen to join the School of Electrical and Computer Engineering. We are committed to the notion that you will continue to regard that a wise choice during your tenure at Georgia Tech and beyond.

Dr. Gary S. May  
Professor and Steve W. Chaddick Chair  
School of Electrical and Computer Engineering  
Georgia Institute of Technology

## Honor Code

### **Georgia Tech School of Electrical and Computer Engineering**

It is expected that all students in the Georgia Tech School of Electrical and Computer Engineering will maintain the high degree of professionalism held standard for all engineers. We, as engineers, expect academic honesty and integrity from ourselves at all times.

Students shall conduct themselves in a professional manner as described in, but not limited to, the list below, taken from the *IEEE Code of Ethics* and the Georgia Tech Student Conduct Code.

1. Accept responsibility for your actions.
2. Respect and treat fairly your instructors and fellow students regardless of any personal characteristics.
3. Engage in no acts of cheating, as defined by each instructor.
4. BE HONEST:
  - (a) Never lie to or mislead an instructor.
  - (b) Never use improperly acquired information.
  - (c) Never collaborate with others in an unauthorized manner.
  - (d) Never misuse data.
  - (e) Never plagiarize.
  - (f) Never engage in unethical conduct in general.

The Student Advisory Board of the School of Electrical and Computer Engineering generated this Honor Code in October 1992.

In order for any Honor Code to be successful, the EE/CmpE Student Advisory Board feels that the following must be accomplished:

- (1) Require each professor to clearly define cheating for each class. Whatever standards a given professor sets should be handed out in writing to each student at the beginning of each term along with the course syllabus. *Instructors in the School of Electrical and Computer Engineering are expected to provide access to old quizzes and examinations so that students may use them as a study resource.*
- (2) Clearly define and adhere to punishment for anyone caught cheating.

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***IMPORANT - This Honor Code is subject to the provisions of the Institute Honor Code, which became effective October 1996.***

## Faculty Credo

### **Georgia Tech School of Electrical and Computer Engineering**

#### **UNITY OF PURPOSE**

Our purpose is to provide students at all degree levels with highest quality preparation for successful professional careers, and, through dedicated scholarship, to advance our profession. We will contribute to the expansion and responsible application of knowledge to the benefit of society. Our relentless pursuit of these goals will fulfill our vision of a Georgia Tech preeminent in information and telecommunications systems, energy and automation systems, and in the underlying enabling technologies.

#### **DIVERSITY OF FUNCTION**

We recognize and embrace the technical diversity of our profession. We seek to enhance this diversity by active engagement with relevant associated Georgia Tech and external professional activities. We will encourage cultural diversity within the ranks of the profession by being a leader in the education of minority and women electrical and computer engineers, students attracted and taught by a faculty equally rich in role models.

#### **PROFESSIONALISM OF METHOD**

We participate in the noblest aspect of a noble profession. We will honor that profession by example, instilling in our students by our own conduct the highest standards of professional behavior.

# ACADEMIC ADVISEMENT

## The Graduate Affairs Office

With approximately 1,200 undergraduate and more than 900 graduate students, the School of Electrical and Computer Engineering is one of the largest EE/CmpE programs in the USA. Because of the large numbers of both students and faculty, we have established certain policies and procedures in order to operate efficiently. Students should consult this manual and the ECE Graduate Affairs Office staff for policy, procedure and advisement information. Guidance provided by fellow students may not be the most up to date and may be unreliable.

For graduate students, the primary contact with the administration of the School will be through the Graduate Affairs Office, which is located in **Room W-208 of the Van Leer (ECE) Building**. The Graduate Affairs Office is administered by Professor Bonnie H. Ferri, Ms. Marilou Mycko, Ms. Jacqueline Trappier, and Ms. Tasha Torrence. Mr. Christopher Malbrue provides additional support to the Graduate Affairs Office staff and to ECE graduate students.

The primary functions of the ECE Graduate Affairs Office are:

Process and make recommendations to the Graduate Admissions Office of the Institute on all applications for admission to the graduate program.

Process and make recommendations to the ECE school chair on all applications for financial assistance in support of graduate programs.

Initiate and maintain a file on each incoming graduate student.

Coordinate the assignment of examination and reading committees for thesis and dissertation activity.

Receive, process, and validate all applications for graduate degrees.

Process information on graduate assistantships and monitor eligibility for tuition waivers.

Prepare draft requests for student (F and J) visas; assure compliance with Bureau of Citizenship and Immigration (BCIS) and SEVIS rules and regulations.

Provide academic advisement and guidance to ECE graduate students.

Make teaching assistantship assignments.

Issue registration permits for ECE graduate level classes.

The staff of the ECE Graduate Affairs Office may be contacted at 404-894-2983 or by email through the “Contact Us” website at <http://www.ece.gatech.edu/academics/graduate/contact.html>. Our fax number is 404-894-3047.

The ECE Graduate Affairs Office provides academic advisement to ECE students in a variety of ways:

### Daily Advisement Hours

- Students desiring one-to-one advisement are also welcome to visit the ECE Graduate Affairs Office.
- The office staff is generally available from 9:30 a.m. to 12:00 noon and 1:30 p.m. to 3:00 p.m. on Monday through Friday.
- All staff members may not be available during the posted office hours.
- Students who need to be assured of an advisor's availability should request an appointment via email to "<http://www.ece.gatech.edu/academics/graduate/contact.html>."
- Students wishing to meet with the Associate Chair for Graduate Affairs must have an appointment. An appointment request should be requested through our “Contact Us” site at <http://www.ece.gatech.edu/academics/graduate/contact.html>. The appointment request should include specific information regarding the purpose of the meeting.

### New Students

- New, on-campus ECE graduate students are **required** to attend an orientation program prior to the start of classes.
- Distance Learning students residing in the Atlanta are welcome to attend this program as well.
- Students admitted into the Georgia Tech – Lorraine (GTL) program participate in an advisement program at the Metz, France campus.
- Georgia Tech – Savannah students receive advisement at the Savannah campus and are also welcome to attend the Atlanta new student program.

### Continuing Students

- Advisement sessions for continuing students are provided prior to the first phase of registration each term. Email is sent to all students announcing the availability of these sessions.

### Web-based Materials

- The ECE website ([www.ece.gatech.edu](http://www.ece.gatech.edu)) also serves as a means by which students may obtain information about graduate degree requirements, policies and procedures.
- Degree program information is stored on the website in an attempt to make advisement information available to students on a continuous basis (<http://www.ece.gatech.edu/internal/students/index.html>).
- Frequently used forms, handbooks, preliminary examination materials are all available on the website (<http://www.ece.gatech.edu/internal/students/index.html>).

- Links to “Frequently Asked Questions,” “Contact Us” information, etc. can also be found at <http://www.ece.gatech.edu/academics/graduate/contact.html>

## Email Communication

At both the administrative and the academic levels, email is the official means of communication with Georgia Tech students. ECE maintains two email contact lists as a means of getting information to our students. The list [grads@ece.gatech.edu](mailto:grads@ece.gatech.edu) includes the email addresses of all enrolled ECE graduate students. This list is updated after the close of registration each term and is used to send information related to academic issues - policies, procedures, registration or deadlines, etc. - to the entire ECE graduate student body.

The email address [news\\_grads@ece.gatech.edu](mailto:news_grads@ece.gatech.edu) is for a subscription-based list for which participation is voluntary. Email messages sent through [news\\_grads@ece.gatech.edu](mailto:news_grads@ece.gatech.edu) are non-academic ones that announce such activities as career fairs, upcoming conferences, employment opportunities, etc. Students wishing to subscribe to the [news\\_grads@ece.gatech.edu](mailto:news_grads@ece.gatech.edu) list do so through the ECE website: [https://www.ece.gatech.edu/mailman/listinfo/news\\_grads](https://www.ece.gatech.edu/mailman/listinfo/news_grads). Your GT email address should be used when subscribing to [news\\_grads@ece.gatech.edu](mailto:news_grads@ece.gatech.edu).

Students may also subscribe at <https://www.gatech.edu/emergency/notification.html> to an institute-wide service that will send emergency alerts to individual GT email accounts.

## Faculty Advisors

- Faculty (or research) advisors are not required for students pursuing a non-thesis master degree. Incoming graduate students and continuing master degree students are advised through the ECE Graduate Affairs Office.
- Ph.D. students and M.S. students choosing the thesis option must have research advisors and are expected to select an advisor early in their degree program.
- Students selecting advisors outside of ECE must have a co-advisor who is on the ECE faculty.

## Ph.D. Research Advisor

- Ph.D. students are expected to select an advisor by the end of the term in which they pass the Ph.D. preliminary examination.
  - Students passing the preliminary examination are provided with an advisor selection form along with the results notification letter. This form should be completed and returned to the ECE Graduate Affairs Office as soon as an advisor selection is confirmed. The advisor selection form is available at: <http://www.ece.gatech.edu/academics/graduate/internal/graduate/forms/index.html>
  - Students in the process of choosing an advisor may use the ECE website (<http://www.ece.gatech.edu/faculty>) for up-to-date information on faculty research interests.

## M.S. Thesis Advisor

- Students should not register for ECE 7000 (MS Thesis Research) hours without filing the signed

“Select MS Thesis Advisor” form.

- In order to make good progress, MS thesis option students should select a research advisor during their first and no later than the beginning (before the close of the final phase of registration) of their second term in residence.
- The ECE Graduate Affairs Office is informed of the advisor selection by submission of the signed “Select MS Thesis Advisor” form. This form is located on the ECE website in the “Graduate Forms and Files” area (<http://www.ece.gatech.edu/academics/graduate/internal/graduate/forms/index.html>).

### Changing Advisors

- Circumstances may arise which make it necessary for a student pursuing the PhD or MS thesis option degree to change advisors. The decision to change advisors is not to be made lightly. Students considering a change of advisor are encouraged to meet with the Associate Chair for Graduate Affairs for guidance in making the change. It is important that all involved (student, current advisor and new advisor) are aware of the situation and that a mutually acceptable resolution result from the change of advisor.
- Students are expected to make good progress in completing their chosen degree program. A single change of advisor, where warranted, is understandable. Multiple advisor changes are viewed as an indication of poor degree completion progress and may have a negative impact on the student’s funding and future academic status.

# REGISTRATION

## Registration Structure

### New Student Information Sessions

- Prior to the start of each term, ECE holds a general advisement session for students entering our graduate program. The specific dates and times of these sessions are announced to new students approximately four to six weeks before the term starts. Attendance at the advisement sessions is mandatory, even for recent bachelor's degree graduates of Georgia Tech.
- The Graduate Office staff is very busy at the beginning of each term and students cannot be guaranteed individual advisement outside of the general sessions before the close of registration.
- Other Georgia Tech entities may also provide orientation/advisement sessions. Students are expected to be aware of these programs and to participate in those that apply to them.
- ECE makes every effort to schedule our advisement program so that it does not interfere with other sessions that ECE students may be required to attend.

### Web-based Registration

- Registration for classes takes place on-line through the Georgia Tech's OSCAR ("On-line Student Computer Assisted Registration") system at <https://oscar.gatech.edu/>.
- The Registrar's Office staff is available to handle questions regarding registration from 9:30 a.m. to 3:30 p.m. Monday through Friday during registration periods.
- Registration-related questions may also be sent to [comments@registrar.gatech.edu](mailto:comments@registrar.gatech.edu).
- Additional registration assistance and/or information may be found at [www.registrar.gatech.edu](http://www.registrar.gatech.edu) under the "Registration" or "Student" tabs.

Registration at Georgia Tech is divided into three phases:

### Phase I Registration

#### **Phase I is for continuing students and co-op students at work.**

- Specific dates for this phase of registration are available on the OSCAR System and through the Registrar's website (<http://www.registrar.gatech.edu>).
- Current graduate students, especially those holding graduate research or teaching assistantships, are expected to register during Phase I.
- To provide maximum access to ECE graduate classes for our students, all ECE graduate level classes are restricted to ECE majors during this first phase of registration.
  - Major restrictions are lifted after all ECE students have had ample opportunity to register.
  - Failure to register during Phase I can limit access to popular ECE classes.
  - Registering during Phase I enables the ECE administration to assess expected enrollments. Classes may be cancelled due to low enrollment in Phase I registration enrollment.
- Fee assessments for those eligible for GRA/GTA fees are effected by Phase I registration.
- The deadline for payment of tuition and fees for continuing students is 4:00 p.m. on the Friday before classes start in the new term. A late charge of \$75.00 may be assessed to those not paying their tuition and fees by the stated deadline.

## Phase II, Registration/Schedule Changes

- Newly admitted students, readmitted students, and continuing students who need to make schedule adjustments register or changes do so during Phase II.
- Specific dates for this phase of registration are available on the OSCAR System and through the Registrar's website (<http://www.registrar.gatech.edu>).
- This registration period runs through Friday of the first week of classes for the term.
- Continuing and readmitted students are required to pay their tuition and fees no later than the Friday before classes start. Failure to do so will result in a late fee being added to the assessment for the term.
- New students are not assessed a late fee unless they do not pay their fees by the close of registration for the term (i.e., 4:00 p.m. on Friday of the first week of classes).
- Students who were not able to finalize their schedule during Phases I must do so during Phase II.
- **Phase II is the last chance students have to add courses to their schedules or to change hours on variable hour classes (for example: ECE 8997, 8998, 7000, 8900, 9000).**
- Effective Summer 2009, students may change the grade basis of classes listed with multiple grading options through drop day of each term. ECE classes are generally offered with a single grade basis, so this option is not available for ECE classes. ECE also specifies which pass/fail courses can (or cannot) be used toward degree requirements. Classes taken on an audit basis cannot be used toward ECE degree requirements.
- There is **no way** to make registration changes (other than dropping a class or withdrawing from school) after registration for the term closes at 4:00 p.m on Friday of the first week of classes.
- Continuing and readmitted students who **begin** the registration process after the Friday before classes start should expect that late fees will be added to their fee assessment for the term.
- Students should be aware of the difference between *schedule changes* made prior to the close of the final phase of registration for a term and *withdrawing from (or dropping)* a course between the close of registration and "Drop Day."
  - A course that is removed from the schedule before the close of registration, using the "schedule change" procedure, will not appear on the transcript for that term. A grade of 'W' will appear on the transcript for any class that is "dropped" (withdrawn from) following the close of registration for the term. "W" grades will be recorded on the transcript for all classes of any students withdrawing from school after the close of registration and/or the final withdrawal deadline.

**It is the responsibility of each student to consult OSCAR and the Registrar's and Bursar's calendars for fee payment and registration deadlines. Failure to register properly and/or meet the fee payment deadline can affect fee assessments and full-time student status as well as result in late fee assessments.**

## Course Meeting Places

- Each school and department posts a list of the meeting places for the classes it offers.
- For ECE classes, this list is posted on the bulletin board on the southwest corner of the second floor of the Van Leer Electrical Engineering Building, near the Academic Affairs Office.
- Course meeting locations will also be available on-line from the ECE WWW server.

## Registration Restrictions

- A student attempting to register for classes may not be able to do so because of registration restrictions that have been placed by an academic or administrative unit at Georgia Tech.
- A permit must be issued by the unit which placed the registration restriction before one is able to register.
- A registration hold may prevent registration until required documentation is provided to the Institute or a change in the student's status or classification is made.
- The ECE Academic Affairs Office is able to assist in dealing with restrictions, but it may be necessary to seek assistance from another academic or administrative unit in some cases.

Some of the registration restrictions that students may encounter include:

### Campus Restriction

- Georgia Tech classes are offered on campus in Atlanta, at Georgia Tech – Lorraine in Metz, France, at Georgia Tech – Savannah, at Georgia Tech - Shanghai and through distance learning.
- Registration is structured so that students can only register for the classes taught through the specific program and/or at the specific campus to which they were admitted.
- **Students who attempt to register for classes in a program other than the one in which they are enrolled will receive a “CAMPUS RESTRICTION” error message.**
- Students receiving this error message will need to request either a registration permit or a change of campus to the one at which the desired classes are offered.
- These requests are made by sending an email through our “Contact Us” website at: <http://www.ece.gatech.edu/academics/graduate/contact.html> and are handled through the ECE Graduate Affairs Office.
- Non-Distance Learning students cannot register for classes offered through the Distance Learning Program.

### Major Restriction

- Academic units may place enrollment restrictions on their classes to insure that students in their major area have full access to the classes they offer. For example, ECE graduate level classes are restricted to ECE majors at least through the second phase of registration. In this way we can be sure that ECE students (especially new ones) have access to our classes.
- Each academic unit determines its own criteria for awarding permits.
- **Students attempting to register for classes with this restriction receive a “MAJOR RESTRICTION” error message.**
- Permits to override the “Major Restrictions” can only be issued by the academic unit that offers the classes.
- Additional information regarding “Major Restrictions” can be found on OSCAR.
- The academic affairs office of the unit offering the class is also a good place to seek a permit.

### Maximum Hours Restriction

- The maximum number of hours for which a student may register in fall or spring semester is 21; in summer term the maximum allowed is 16.
- **Students attempting to register for more hours will receive a “MAXIMUM HOURS EXCEEDED” error message** and must see the Registrar’s Office to request an exception.
- Students wishing to be approved for this exception should advise the ECE Graduate Affairs Office of their plans as the Registrar’s Office will contact us for additional information regarding the request.

### Permit Required

- Some classes are set up so that no one can register for them without permission.
- **Students attempting to register for classes with this restriction receive a “PERMIT REQUIRED” error message.**
- In ECE, Special Problem (ECE 8901, 8902, 8903) classes are restricted to those with registration permits. ECE 8022 (Professional Communications Seminar) is also offered on a permit-only basis. Directions for requesting registration permits for these classes are in another area of this manual.
- The “permit required” restriction for classes offered by other academic units can only be handled by the unit offering the class.

### Time Conflicts

- **Students attempting to register for two classes that meet at the same time will receive a “TIME CONFLICT WITH XXXX” error message.**
- Assuming that the instructors of both classes are willing to accommodate a student in this situation, a permit to register for both classes may be obtained.
- A time conflict form has to be signed by the student and both instructors to receive this permit.
- Students with “time conflict” permits must adhere to the on campus schedule for each class unless other arrangements are made with the faculty instructor(s).

## Course Overload Policy

- A specific number of registration spaces are allotted for each class offered through Georgia Tech. When the number of students enrolled in a class reaches the allotted number, registration for that class is closed. **Students attempting to register for classes that are closed will receive a “CLOSED SECTION” error message.**
- Although ECE graduate level classes are very popular with ECE and non-ECE graduate students as well as some upper class undergraduate students, we do not accept requests from students to be considered for overloads into our graduate level classes. ECE makes very reasonable effort throughout registration to manage enrollment availability in order to accommodate as many ECE students as possible in our courses.
- Senior ECE undergraduate students or non-ECE graduate students who are attempting to register for ECE classes that have space available and are denied access to register for the class by the registration system, should file either a Non-ECE or Undergrad "Seeking Permission to Registrar for a Graduate Level Class" permit request through the ECE website (<http://www.ece.gatech.edu/academics/graduate/internal/index.html>).
- Students attempting to register for a graduate class that is full should continue to monitor registration for openings. It is common for spaces to become available in classes that once appeared to be filled to capacity. This is especially true after the first day of classes and through the final phase of registration.
- Students who are unable to gain access to a class during the first week of the semester and require an overload for it, must speak with the class instructor and obtain his/her permission to overload.
- The faculty member must advise the ECE Graduate Affairs Office in person or by email when they grant permission to students to overload into their classes. After the faculty member's authorization is received, the ECE Graduate Affairs Office will review the student's request and notify them when the overload permit has been issued.
- To seek permission to register for a non-ECE course that is closed, students should contact the school or department offering the course and follow that academic unit's overload procedure. Contact information for other academic units can be found in OSCAR.

## Prerequisite Restriction

- The course listings in the General Catalog of Georgia Institute of Technology (<http://www.registrar.gatech.edu>) and on-line at <https://oscar.gatech.edu/> contain information regarding class prerequisites.
- Graduate students lacking prerequisites (or who are unsure as to whether they have the required background) for a graduate level class are urged to contact the class instructor for an assessment of their background before registering for the class.

- Prerequisite requirements for graduate level (6000 and higher) classes are not hard-wired into the registration system. Students taking graduate classes may register for and take classes for which they do not have the specific prerequisite. Students undertaking classes for which they do not have the listed prerequisite (or its equivalent from another school) do so at their own risk.
- Prerequisite requirements for undergraduate level (1000-4999) classes are hard-wired into the registration system.
- **Students attempting to register for classes with this restriction receive a “LACKS PREREQUISITE” error message.**
- Permits for ECE undergraduate classes are handled through the undergraduate advisors in the ECE Academic Affairs Office.
- Graduate students seeking to enroll in undergraduate classes with prerequisites should file a registration permit through the web-based permit request system found at <http://www.ece.gatech.edu/academics/internal/index.html>)
- The ECE undergraduate advisors may require that students requesting prerequisite permits meet with them before a registration permit is awarded.
- Prerequisite permits for classes in areas other than ECE are handled by the schools or departments offering the classes.

### Registration Holds

- Registration holds are used by various Georgia Tech academic or administrative units as a way to get the attention of students.
- When a hold is issued, students cannot register for classes, remove classes from their schedules, withdraw from school, etc. A hold may even prevent graduation.
- A very brief explanation of the reason for the hold and an indication of the unit placing the hold are indicated in OSCAR.
- **Holds can only be removed by the unit which placed the hold.**
- Although the ECE Graduate Affairs Office can only remove holds that we have placed, we can help determine which unit placed a non-ECE hold if that is not clear.
- To have a hold removed so that one may register (drop a class, withdraw from school, etc.), it is necessary to contact the unit that issued the hold.
- Graduate students with registration holds placed by ECE may contact us via email through the “Contact Us” site <http://www.ece.gatech.edu/academics/graduate/contact.html> or by coming to the ECE Graduate Affairs Office during regular office hours.

## GRADES AND SCHOLASTIC REQUIREMENTS

The information in this section is a synopsis of general graduate school requirements. Additional information regarding specific Institute rules and regulations may be found in the Georgia Institute of Technology General Catalog. The information in this handbook is by no means exhaustive; students are **required** to be familiar with policies, rules, and regulations as recorded in the General Catalog.

### Academic Standing

Students whose grades and/or grade point averages fall below the applicable minimums in any term will have academic standings of "Warning," "Probation," "Review," or "Dismissal" depending upon their specific situation. The Georgia Institute of Technology General Catalog provides the official description of these academic standings and their consequences. The synopsis below is not intended to contradict the general catalog, it is offered as a brief guide for ECE students.

#### Good

- Georgia Institute of Technology and the School of Electrical and Computer Engineering require that students in the master degree program maintain a 2.70/4.00 grade point average in order to remain in "Good" academic standing.
- A grade point average of 3.00/4.00 is required for students in the PhD program to remain in "Good" academic standing.

#### Warning

- "Warning" status is a subcategory of "Good" academic standing. Graduate students receiving "C" or lower grades in any term, but having an acceptable overall GPA are placed on "Warning." This status also applies to graduate students with a term GPA below the required minimum and overall GPA at or above the required minimum. "Warning" status changes when the student completes a term in which all the grades in letter grade classes are above "C" and/or the term GPA is at or above the required minimum.

#### Probation

- "Probation" status is issued in cases where the overall GPA is below that required for the degree program.
- Students on probation face academic dismissal following the next term enrolled unless significant improvement in the overall grade point average is made.

#### Review

- Students whose academic standing is "Warning" or "Probation" and do not have any grades reported in a term (not enrolled, no letter grade classes or all "incomplete" grades) may be placed on "Review."
- Students in this status will not be permitted to register for classes until they meet with an ECE academic advisor and determine an academic plan for the term.

- Examples:
  - The academic status of a student who is placed on “Warning” or “Probation” at the end of spring term and does not enroll for the summer term will change to "Review" at the end of summer term. This status must be cleared before the student can register for fall term.
  - The academic status of an MS thesis option student who is on “Probation” at the end of summer term and registers for non-letter grade hours such as ECE 7000 (MS Thesis) or ECE 8998 (GRA hours) in fall term, will change to "Review" at the end fall term. This status must be cleared before the student can register for spring semester.
- The Registrar's Office must approve the academic plan before the “Review” status is changed and the student is allowed to register.

### Dismissal

- Students whose overall GPA in two consecutive terms is below the required minimum for their degree program should expect to be dismissed from school.
- Students with a 2.0 term GPA may be dismissed regardless of their previous academic performance
- Students who are academically dismissed must remain out of school for at least one semester (this does not include summer term) and will have to negotiate an acceptable academic improvement plan before they can be considered for readmission.

### Examination Policy

The School of Electrical and Computer Engineering follows the guidelines on quizzes and final examinations set forth by the Academic Senate of the Institute. These guidelines are:

- Students **should** receive some performance evaluation before the withdrawal deadline indicated on the official Institute calendar.
- Quizzes are not to be given later than one week prior to the scheduled final examination period, nor after the Wednesday of the week preceding final examination week.
- All quizzes are to be graded and returned on or before the Friday before final examination week.
- Each regularly scheduled lecture course shall have a final examination, and the exam shall be administered at the time specified in the official final examination schedule as distributed by the Registrar.
- A request for a change in the final examination period for an individual student will not ordinarily be granted. The request must be justified in writing and submitted to the instructor at least one week before the beginning of final examinations.
- Typically, the only exam change requests approved are for reasons beyond the student’s control and for which documentation must be presented. Requests for exam changes to meet travel schedules are not a valid reason and will not be granted. Students should not make arrangements to travel prior to the end of final exam week.
- A request for a change in the final examination period for a class must have the approval of the instructor and unanimous approval of the class as determined by secret ballot. The request must

be submitted to the Associate Chair for Undergraduate Affairs at least two weeks before the beginning of final examinations.

- In the event a student has two examinations officially scheduled for the same period, it is the obligation of the instructor of the lower numbered course to resolve the conflict by giving a final examination to that student. This is usually done during the official conflict period (generally the Saturday morning at the end of Final Examination Week) or at a mutually satisfactory alternate time **during** final examination week.
- In the event a student is officially scheduled to take three examinations in the same day, it is the obligation of the instructor of the class scheduled for the middle examination period to give a final examination to that student during the official conflict period or at a mutually agreeable time **during** final examination week.

### Withdrawal from Classes

Withdrawing from (or dropping) a course is a serious decision. A student who drops a course after several weeks of effort is basically "quitting a job" before its conclusion. Students are expected to make good progress toward completing their degrees. Graduate Research and Teaching Assistants, students holding F or J Visas or on fellowships, and active duty military are expected to be full-time students.

- A Georgia Tech student is entitled to withdraw from a course during the early weeks of the term. Students withdrawing from classes after the close of registration for the term will receive "W" grades in the classes from which they withdraw.
- The exact date of the deadline for withdrawal from classes is posted in the **Official School Calendar** (<http://www.registrar.gatech.edu>) and are also found on the OSCAR system. **It is each student's responsibility to know the exact deadline for each term.**
- Students withdraw from classes electronically through the OSCAR System. ECE graduate students needing to withdraw from classes will use the following procedures:
  - A registration hold is recorded for all ECE graduate students following the close of registration each term. The purpose of this hold is to prevent students from withdrawing from classes or school without the knowledge of the ECE Graduate Affairs Office.
  - **The hold will automatically expire before registration for the next term opens and will not interfere with the registration process.** Only an ECE Graduate Affairs Office staff member can remove these holds.
  - Students who need to drop a class or withdraw from school must follow the procedure outlined below.
  - **Students who do NOT need to drop a class or withdraw from school do not need to do anything related to a hold on their registration. It will expire automatically and will not interfere with the next term's registration.**
  - A request for permission to drop a class or withdraw from school is filed through the ECE website (<http://www.ece.gatech.edu/internal/students/index.html>).
  - To drop a class, the request must be received **no later than 3:00 p.m.** on Drop Day.

- Requests made after 3:00 p.m. will be processed at the discretion of the ECE Graduate Affairs staff.
- The hold on the student record of those whose requests are approved will be removed and the student will be notified by email from <http://www.ece.gatech.edu/academics/graduate/contact.html> that the hold has been removed.
- Not all requests to drop classes are approved.
- Students will also be notified if their request is not approved.
- Students requesting drop approval should continue to attend the class(es) until they receive an approval notification.
- **Students are responsible for actually dropping classes through <https://oscar.gatech.edu> after approval is received.**
- **The electronic course withdrawal procedure must be completed before the official (Institute) deadline.**

### Withdrawal from School

**A student who needs to leave school does so by withdrawing from all classes. A student who needs to withdraw from school should follow the procedure above.**

- The deadline to file a withdraw request with the ECE Graduate Affairs Office is 3:00 p.m. on the final business day (Monday through Friday) before the withdrawal deadline.
- If the Institute's deadline for withdrawing from school falls on a weekend (Saturday or Sunday), the department's approval must be obtained by 3:00 p.m. on Friday.
- A decision regarding the request for approval to withdraw from school will be made and the student will receive notice of the decision via email.
- If the withdraw request is approved, the hold on the student record will be removed and the student will be notified by email from <http://www.ece.gatech.edu/academics/graduate/contact.html> that the hold has been removed.
- **Students are responsible for completing the electronic withdrawal from school before the official (Institute) deadline.**
- **Full-time graduate students who withdraw from school during a term are required to remain out of school in the following term as well.** A petition to the faculty requesting a waiver of this requirement may be filed. If the student is not registered in **two consecutive terms** (including the one in which he withdrawal occurred, an application for readmission must be filed. Part-time graduate students who withdraw during a term are not required to remain out of school for an additional term.

## **IMPORTANT NOTES RELATED TO WITHDRAWAL PROCEDURES**

Requests for approval to drop a class or withdraw from school made by any other method (phone call, emails to other addresses, visits to the ECE Graduate Affairs Office, etc.), including multiple requests will not be processed.

Students who abuse the approval process by dropping classes other than the ones approved risk losing their funding or being considered "out of status" on their student visas or losing their tuition waivers.

### **Readmission**

- Any student in "Good" academic standing who is not enrolled for a single term (fall, spring, or summer) is eligible to re-enroll without applying for readmission to the Institute.
- Any student who is not enrolled for two or more consecutive terms (including summer) must apply for readmission.
- An "Application for Readmission" form is used for this purpose and can be obtained by accessing <http://www.registrar.gatech.edu> and clicking on "Forms and Student Records," then "Readmission" and following the directions provided. There is a \$25.00 fee charged for readmission.
- For purposes of readmission, there is **no distinction** between the terms of the regular academic year (fall and spring) and the summer term.

Before the ECE Graduate Affairs Offices makes a decision regarding a readmission application, students applying for readmission will be asked to provide the following information:

- Academic/Professional activities undertaken while absent from Georgia Tech
- Plans for degree completion (including degree sought, part-time or full-time, expected time to degree completion)
- Financial needs
- Advisor status
- International students will have to provide an updated Information from Non-Citizens form and original, official documentation of funds as well.
- Recommendations from faculty may also be sought before a decision is made on readmission applications.
- Students who have been "academically dismissed" will have to file readmission agreements in addition to the readmission application.
- Students who have poor academic records or who have not made good progress in completing degree requirements may not be recommended for readmission.

**PLEASE NOTE:** Throughout the following Master of Science and PhD degree sections of this handbook, the term “6000 level” is used frequently when referring to graduate classes. Included under the heading of “6000 level” are courses at the 7000, 8000 and 9000 levels. An indication that a “6000 level class” is needed to meet a requirement, means that an appropriately approved 7000 or 8000 level class may also be used.

It should be further noted that **not all ECE 6000, 7000, 8000 level courses are approved** for use toward the graduate degree coursework requirements. Specific notations as to the type of classes that must be used to fulfill requirements are indicated in the information which follows.

## THE MASTER of SCIENCE DEGREE

The School of Electrical and Computer Engineering offers an extensive graduate program encompassing a broad range of areas of specialization. When designing the M.S. curriculum, the ECE faculty intended that the graduate degree requirements would be flexible enough to meet the individual needs of ECE graduate students while at the same time insuring that all graduates complete a well-rounded program of study that will support their professional goals.

### Degree Requirements

- A total of 30 semester credit hours are required for the master's degree.
- A minimum grade of "C" is required in all classes used toward the master's degree
- A cumulative grade point average of 2.70 must be maintained to remain in "Good" academic standing in the MS program.
- A master's degree student must have a minimum GPA 2.70 in order to graduate.
- A minimum of 21 of the 30 hours used toward the master's degree must be graduate level (6000 and above).
- At least 18 hours of ECE 6000 level classes are needed to meet degree requirements.
- No more than 9 hours of 4000 level courses can be used toward a graduate level ECE degree.
- 4000 level classes can only be used toward the elective (Group IV) or minor (Group III) areas of the MS coursework requirements.
- A minor consisting of six credit hours of courses in a single discipline (e.g. Math, Physics, Mechanical Engineering, etc.) outside of ECE is included in the required 30 hours.
- ECE offers both the designated MSECE and the undesignated MS degree to all MS students. The selection of the designated or undesignated degree is made when filing the "Graduate Petition for Degree." There is no difference in the degree requirements between the designated and undesignated ECE masters degrees.
- Up to six semester hours of graduate level credit, completed through an accredited program in the United States and not previously used toward another degree may be transferred toward fulfillment of the master's degree requirements. The grades for classes to be transferred must be at the "B" level or higher. The procedure for requesting transfer of classes to be used toward the MS is addressed in the "IMPORTANT INFORMATION FOR ALL STUDENTS" section of this manual.

The following table describes the options available to meet the requirements for the Masters degree in the School of Electrical and Computer Engineering.

| <b>Requirement</b>  | <b>Class Hours (Non-Thesis Option)</b> | <b>Class Hours (Thesis Option)</b> |
|---|--|------------------------------------|
| Group I - ECE 6000 level classes in one or two Technical Interest Areas (TIAs)                            | 9                                      | 6                                  |
| Group II - ECE 6000 level classes with at least two of which come from TIA(s) other than those in Group I | 9                                      | 6                                  |
| Group III (Minor in an area outside ECE)  | 6                                      | 6                                  |
| Elective Hours (4000 level or above)  | 6                                      | 0                                  |
| MS Thesis Research  | 0                                      | 12                                 |
| <b>Total Hours</b>  | <b>30</b>                              | <b>30</b>                          |

In order to complete the master’s degree in a timely manner, it is crucial that new MS students file coursework plans during their first term in graduate school. Coursework plans should be filed by drop day of the first term in residence. Please be sure to click on “New,” indicating this is a new coursework plan, to indicate whether you plan to do the thesis or non-thesis option and to indicate the campus at which you are based. You will not be able to save your course plan if you do not select a campus.

Clicking on “Save” and “Submit” at the bottom of the form will add it to the queue of plans that are ready to be reviewed by the ECE Graduate Affairs Office.

MS students planning to pursue the PhD degree should note that all nine hours of classes in Group II must be from TIAs other than those in Group I to fulfill the PhD coursework requirement. In addition, PhD minors are expected to complement the PhD research so non-engineering/non-technical minor classes are rarely approved for use toward the PhD minor. Following the PhD criteria for Groups I, II, and III may save time when completing the PhD coursework requirements.

**IMPORTANT**  
**Whether following the thesis or non-thesis option, ECE seminars (ECE 6792, 8001, 8002, or 8010), Special Problems (ECE 8901, 8902, and 8903) and research marker course (ECE 8900, 7000, and 9000) hours cannot be used toward the Group I, II, or III requirements. All hours in Groups I, II, and III must be letter grade ones, no pass/fail or audit hours may be used to meet these requirements.**

## Groups I and II – Selection of ECE 6000 Level Classes

- Technical Interest Areas (TIAs) are groups of related courses within electrical and computer engineering and include: Bioengineering, Computer Engineering, Digital Signal Processing, Electrical Energy, Electronic Design and Applications, Electromagnetics, Microelectronics/Microsystems, Optics and Photonics, Systems and Controls, and Telecommunications.
- The combination of 6000 level ECE classes from different technical interest areas required in Groups I and II is designed to provide room for flexibility in a student's study program while assuring that attention is paid to depth and breadth within the field of Electrical and Computer Engineering.
- Nine hours of 6000 level coursework in one or two Technical Interest Areas (TIAs) are needed to fulfill the Group I requirement for non-thesis master's candidates.
- In Group II, at least six hours of 6000 level coursework must be completed outside the TIA(s) of Group I. These courses must not be cross-listed with the TIA(s) chosen for Group I. The additional three hours needed to meet the non-thesis option requirement of 18 graduate level hours in ECE can be met with any 6000 (or above) level ECE course. Group II classes may be selected from one, two or three TIAs, provided degree requirements are met.
- To verify the technical interest area of a particular course, consult the most recent "Classes by Technical Interest Area" list, which is issued by the ECE Graduate Affairs Office. This list is included in the MS degree petition packet and is on the ECE website with the other graduate program materials. In addition, the "Graduate Projected Course Schedule" at [http://www.ece.gatech.edu/academics/graduate/course\\_schedule.pdf](http://www.ece.gatech.edu/academics/graduate/course_schedule.pdf) provides a list of the classes assigned to each Technical Interest Area.
- MS students planning to pursue the PhD degree should note that all nine hours of classes in Group II must be from TIAs other than the ones in Group I to fulfill the PhD coursework requirement. Following the PhD criteria for Group I and II classes can save time in completing the PhD coursework requirements.

### Group III (Minor): 6 Hours outside ECE as a Minor Field of Study

- Mathematics courses are most frequently used by ECE students to fulfill the minor requirement.
- The Math courses below are usually recommended for a master's minor:

|      |                               |
|------|-------------------------------|
| 4580 | Linear Programming            |
| 4581 | Classical Math Methods in Eng |
| 4583 | Vector Analysis               |
| 4640 | Numerical Analysis I          |
| 4641 | Numerical Analysis II         |

- Most 4000 and 6000 level Math classes are approved for use toward the MS minor.
- In addition, any Math courses listed as acceptable for the Ph.D. minor may be used.
- Subject to approval, graduate level courses from other science and engineering disciplines may be used toward the minor requirement.
- 6000 level minor courses are preferred, 4000 level or a combination of 4000 and 6000 level courses will be considered for approval, provided the overall degree requirements are met.
- Management minors may be approved for use toward the MS degree. MS students planning to continue on for the PhD degree should note that Management classes are generally not approved for the PhD minor. Other non-science or non-engineering classes may also not be approved for use toward the minor requirements.
- **Minor courses must be in one discipline only.**
- **Minor courses must not be cross-listed with ECE.**
- A listing of Computer Science courses approved for use toward the minor requirement is available at ECE's website.
- CS special topics classes may not be used toward minor requirements.
- All minor course selections are approved as part of the coursework plan approval process.

**Important Note: ISYE 6739 (Basic Statistical Methods) cannot be used toward the MS or PhD minor requirement.** This restriction also applies to any course in which the catalog description or syllabus includes the stipulation that it cannot be used toward degree requirements by the majors of the school offering the course.

In general, Special Topic (88XX) courses are not approved for use toward minor requirements. Students wishing to use classes that are not pre-approved for minors must follow the procedure below to have the courses considered for minor requirement approval.

1. At least four weeks (and no fewer than three weeks) prior to the first day of the final phase of registration for the term in which the non-ECE is offered, the student must provide either a hard copy or a link to electronic media outlining the course for which approval is sought. At a minimum, the following must be provided:
  - a. Course number and name, course instructor's name and contact information (ie. Email address or phone number)
  - b. Textbook(s)—if any—to be used for the course

- c. Prerequisites (if any) for the class
  - d. Lecture topics to be presented throughout the course
  - e. Grading requirements for the class
2. Upon receipt of the course outline, the information will be forwarded to the appropriate ECE TIG to determine whether or not the class can be used toward the minor and whether the class can be used only for the MS minor, for the PhD minor, for the minor for either degree, or cannot be used as a minor course at all. Courses not approved for use toward the minor may be approved for use as electives by the reviewing faculty member.
  3. When the TIG advises the ECE Graduate Affairs Office of a decision regarding use of the special topic, the student will be notified.
  4. The faculty's decision is final and is not subject to negotiation.
  5. Requests submitted after the stated deadline **will not** be considered.
  6. If concerns arise about any other course selected, the student will be contacted to provide additional information before an approval decision is made.

#### Group IV (Electives): 6 Hours

- These hours may be selected from most disciplines offered at Georgia Tech (including ECE). Students choosing elective hours outside of ECE or other engineering disciplines may be asked to justify their choices.
- No courses below the 4000 level can be used toward Group IV (Electives) or any other portion of the MS program.
- In the thesis-option MS degree, 12 ECE 7000 hours (MS thesis research) are used to fulfill the Group IV requirement.

#### Pass/Fail Hours

- No more than **three** hours of pass/fail coursework may be used toward the non-thesis M.S. degree
- Pass/fail hours may only be used in the Group IV (Electives) portion of the program.
- The **only** pass/fail courses that are acceptable elective hours are the ECE seminars (ECE 6792, 8001, 8002, and 8010) or ECE 8020 (Professional Communication Skills).
  - Students entering the ECE graduate program in Fall 2006 or later cannot count ECE 8020 toward the professional communications requirement for the PhD degree.
  - ECE 8020 can be used as an elective course for the MS non-thesis degree as long as no more than a total of three pass fail hours are used to fulfill degree requirements.
- PhD students, who have completed the Professional Communications Seminar (ECE 8022) and are petitioning for an MS degree, may use ECE 8022 as one of the three pass/fail classes that may be used in the elective portion of their MS degree requirements.

#### 6000 Level Courses

**A minimum of 21 hours of the overall MS degree program must be at the 6000 (or above) level. This should be kept in mind especially when choosing the classes to be used toward the minor and elective portions of the MS program.**

## Thesis Option

- Students choosing the MS thesis option must complete a **minimum** of 12 hours of ECE 7000 to meet degree requirements. These hours are shown in the Group IV (Electives) portion of the MS coursework plan.
- Thesis option students are required to have a research advisor who will indicate their commitment to serve as advisor by signing the "MS Thesis Advisor Selection" form and submitting the completed form to the ECE Graduate Affairs Office.
- MS thesis option students present a research review (proposal) to their MS Thesis Reading Committee (research advisor and two additional ECE faculty members) when a significant portion of their research is completed.
- The research advisor determines the manner in which this review is to be presented.
- After the research progress is reviewed, the committee provides a signed "Masters Thesis Topic Approval" form to the ECE Graduate Affairs Office for processing.
- **There must be a minimum of 90 days between when the ECE Graduate Affairs Office submits the "Masters Thesis Topic Approval" form to the GT Graduate Affairs – VPR office and submission of the MS thesis to the reading committee for their final approval.**
- In depth guidelines related to the MS thesis option degree, along with a link to the MS Thesis Topic Approval Form, can be found on the ECE website at:  
<http://www.ece.gatech.edu/internal/students/graduate/forms/index.html>.
- Georgia Institute of Technology thesis preparation and submission guidelines are available at:  
[http://www.grad.gatech.edu/thesis/thesis\\_man.html](http://www.grad.gatech.edu/thesis/thesis_man.html).
- The forms needed to accompany the submission of the final MS thesis to the Graduate Studies – VPR office are at: <http://www.grad.gatech.edu/thesis/forms.html>.
- The format of the thesis and other related reporting are controlled by the Graduate Studies – VPR office (Savant Building). The student must keep in touch with that office in order to insure that all degree requirements are met.
- The Graduate Studies – VPR office strongly urges MS thesis students to have their thesis format checked before submitting the final version of the thesis to them. A thesis checking deadline is posted on their website at: <http://www.grad.gatech.edu/thesis/thesisdeadlines.html>
- If, at any time, there is uncertainty about the MS thesis process, check with the ECE Graduate Affairs Office. Do not rely on secondhand information!

## ECE Coursework Plan

- All ECE MS students are required to file a coursework plan by Drop Day of their first term of study.
- This is especially crucial for MS students since the degree requirements are usually completed in two to three terms and a misinterpretation of degree requirements could have significant consequences.
- Coursework plans are filed through a secure ECE website (<https://secure2.ece.gatech.edu/PHP/gradforms/login.php>)
- When filing a coursework plan it is important to be sure to indicate the campus at which one is based by clicking the appropriate button on the form. The system is set up so that the coursework plan is not saved unless a campus is selected.
- In addition to clicking the “Save” button when the coursework plan is completed, the “Submit” button must be clicked as well. Plans for which “Submit” has been clicked will be added to the list of those ready to be reviewed.

### Degree Completion Progress

Graduate students in the ECE degree programs are expected to make diligent progress toward completion of degree requirements. It is in the best interests of both students and faculty for all students to progress through the program expeditiously. Reasonable progress in the MS program is defined as follows:

#### Non-thesis Option

- A full-time Master’s student seeking the non-thesis MS or MSECE is expected to complete all degree requirements in a maximum of three semesters of enrollment, not counting summer terms, or a maximum of four semesters of enrollment if that student participates in the Cooperative Education (co-op) program.
- It is possible to complete the requirements in fewer terms!
- Students are permitted to spend one regular (non-summer) semester as an intern in an industrial or government position during their program of study.
- Students considering more than one semester of internship or other employment must be participants in the co-op program and have permission of the ECE Associate Chair for Graduate Affairs.

#### Thesis Option

- A full-time Master’s student seeking the thesis-option MS or MSECE is expected to complete all degree requirements in four semesters of enrollment, not counting summer terms.
- Students are permitted to spend one regular semester as an intern in an industrial or government position.
- Students considering more than one semester of internship or other employment must be participants in the co-op program and have permission of the ECE Associate Chair for Graduate Affairs.

### Financial Support

- Students supported as GTAs or GRAs must be enrolled on a full-time basis in each term in which they are employed. This includes summer term.

- The length of employment for GRA appointments is determined by the faculty advisor, but should not be expected to exceed the parameters outlined above.

Exceptions to these policies may be made by the Associate Chair for Graduate Affairs after reviewing the circumstances involved as presented by the student and the research advisor.

## THE PH.D. DEGREE

The Doctor of Philosophy degree requires concentration in a particular area of electrical or computer engineering as well as demonstrated mastery over the fundamentals of electrical and computer engineering. It is awarded in recognition of demonstrated proficiency and high achievement in the student's major field within electrical or computer engineering. A significant contribution to the knowledge in the area of electrical and computer engineering is made through successful dissertation research.

When designing the graduate curriculum, the ECE faculty intended that the Ph.D. degree requirements would be flexible enough to meet the individual needs of ECE graduate students while at the same time insuring that all graduates complete a well-rounded program of study that will support their professional goals.

### Degree Requirements

- A total of 43 semester credit hours are required for the Ph.D. degree.
- A minimum grade of "C" is required in all classes used toward the Ph.D. degree
- A cumulative grade point average of 3.00 must be maintained to remain in "Good" academic standing in the Ph.D. program.
- A doctoral degree student must have a minimum GPA 3.00 in order to graduate.
- A minimum of 21 of the 43 hours used toward the Ph.D. degree must be graduate level (6000 and above).
- At least 18 hours of ECE 6000 level classes are needed to meet degree requirements.
- **No more than 9 hours of 4000 level courses can be used toward a graduate level ECE degree.** 4000 level classes can only be used toward the elective (Group IV) or minor (Group III) areas of the PhD coursework requirements.
- A minor consisting of nine credit hours of courses in a single discipline (e.g. Math, Physics, Mechanical Engineering, etc.) outside of ECE is included in the required 43 hours.
- Doctoral students who do not have an Electrical or Computer Engineering M.S. degree from a school in the United States, may petition to receive the M.S. at Georgia Tech when they complete 30 hours of coursework that fulfills our degree requirements.

The following table describes the options available to meet the requirements for the Masters degree in the School of Electrical and Computer Engineering. It is important to note that 21 hours must be at the graduate (6000) level. Of these, 18 hours are required to be in ECE and are to be allocated as indicated in the chart which follows:

### Coursework

The coursework requirements for the Ph.D. degree are:

| <b>Requirement</b>   | <b>Hours</b> | <b>Description</b>   |
|--|--------------|--|
| <b>Group I: ECE 6000 level classes in one or two TIAs:</b> | 9            | Nine hours of classes from one or two technical interest areas (TIAs) of the student's choice. All for letter grade credit.  |
| <b>Group II: ECE 6000-level classes</b>                    | 9            | Nine hours of classes, <u>all of which</u> must be outside of and not cross-listed with the TIAs above. All for letter grade credit.   |
| <b>Group III Minor in an area outside ECE</b>              | 9            | Nine hours of classes in a <u>single discipline</u> outside of ECE. All for letter grade credit  |
| <b>Group IV: Electives</b>                                 | 14           | (Up to 12 MS thesis hours, <u>recorded as such on an official transcript</u> , may be used in this area)   |
| <b>ECE 8010 (Research Seminar)</b>                         | 1            | Pass/fail. NOTE: PhD students are <b><u>strongly urged</u></b> to take this class during their <u>first or second semester</u> in the graduate program.  |
| <b>Professional Communications requirement</b>             | 1            | Pass/fail. Students entering the graduate program in Fall 2006 must take ECE 8022 to fulfill this requirement. Those matriculating prior to fall 2006 may use ECE 8020 to fulfill the professional communications requirement. NOTE: PhD students are expected to complete ECE 8010 before taking ECE 8022 or 8020 |
| <b>Total hours required</b>                                | 43           | Students taking ECE 8022 (1 hour professional communications seminar) will have to take a minimum of two additional hours to meet the 43 hour requirement. They may end up with a total of 44-45 hours   |

- The total number of class hours actually taken for the Ph.D. degree depends upon the highest degree completed by the student before entering Georgia Tech.
- Students entering the PhD program without any prior graduate work must complete a minimum of 43 hours of coursework as outlined above.
- The coursework will consist primarily of graduate (6000) level courses with no more than three senior (4000) level courses (9 semester hours) permitted to be used toward the PhD coursework requirement.

- No more than a total of four pass/fail hours can be used toward the PhD coursework requirement—this includes ECE 8010 and 8022 (or 8020 where applicable)
- Georgia Institute of Technology requires that Ph.D. students maintain a cumulative grade point average of 3.0/4.0 to remain in good standing.
- All classes used to fulfill the PhD coursework requirement must have grades of “C” or above.
- Students entering the Ph.D. program with a Master's degree may be permitted to use as many as 30 semester hours toward the 43 hours of coursework required for the degree. The procedure to follow in order to submit master's degree hours to be considered for use toward the PhD coursework requirement is detailed under the “Applying MS Coursework Completed at other Schools toward the PhD Coursework Requirement” heading in this handbook.
- Georgia Institute of Technology requires that at least nine hours of letter grade coursework be taken at Georgia Tech. The School of Electrical and Computer Engineering expects that this coursework would be graduate (6000) level ECE courses. Ph.D. students must maintain a 3.00/4.00 cumulative grade point average to remain in “Good” academic standing. A minimum grade point average of 2.70/4.00 in the minor courses is also needed for Institute approval of the minor. These GPA conditions must be met to graduate.
- PhD students are required to complete a minimum of two full-time terms on campus. ECE Expects that most if not all of one's PhD coursework and research will be completed on campus, under the supervision of an ECE faculty member.

### Minor Field of Study

The PhD minor is a requirement of the Georgia Institute of Technology. Within the minimum requirement of 43 hours of coursework, the student must complete a minor field of study consisting of nine hours of classes in a **single discipline outside of electrical or computer engineering**. While mathematics is a very popular minor area, courses in other disciplines will be considered provided they meet the following criteria:

- All minor courses are in a single field. For example, one cannot combine courses in Computer Science and Physics for a minor.
- Minor courses must not be cross-listed with ECE.
- It is preferred that all minor courses be at the graduate (6000 and above) level; however, 4000 level undergraduate courses will be considered for use toward the minor.
- Courses should enhance or support the dissertation research.

**Important Note: ISYE 6739 (Basic Statistical Methods) cannot be used toward the minor requirement.** This restriction also applies to any class that has a stipulation that it cannot be used toward degree requirements by the majors of the school offering the class.

- Minor courses in non-technical areas (for example, Management) will not be approved.
- Approval of the minor courses is secured from the ECE Graduate Affairs Office via the web-based PhD coursework completion plan.
- When completed, PhD minors are submitted to the Georgia Tech Graduate Studies – VPR office for approval.
- The minor courses submitted to the Institute for approval must have a minimum grade average of 2.70/4.00.
- It is important to note that Georgia Institute of Technology truncates decimals and does not round them off. Therefore, a gpa of 2.67 in the minor courses is not considered to be the equivalent of 2.70. A PhD minor submitted to the GT Graduate Studies Office with a 2.67 GPA would not be approved.

The following Math courses are acceptable for a Ph.D. minor.

|      |  |
|------|--|
| 4305 | Topics in Linear Algebra   |
| 4317 | Introduction to Analysis I   |
| 4318 | Introduction to Analysis II  |
| 4320 | Complex Analysis   |
| 4431 | Introductory Topology  |
| 4432 | Introduction to Algebraic Topology                                   |
| 6701 | Methods of Applied Science I   |
| 6702 | Methods of Applied Science II  |
| 6580 | Introduction to Hilbert Spaces                                       |
| 6583 | Integral Equations and Transforms                                    |
| 6584 | Special Functions of Higher Mathematics                              |
| 6640 | Introduction to Numerical Methods for Partial Differential Equations |
| 6641 | Advanced Numerical Methods for Partial Differential Equations        |

In addition, most 6000 (or higher) level Math course will be considered for approval for use toward the minor requirement.

A list of Computer Science courses that are approved for use toward the PhD minor is located on the ECE website ([http://www.ece.gatech.edu/academics/graduate/CS\\_minor.html](http://www.ece.gatech.edu/academics/graduate/CS_minor.html)). Only classes on the approved list can be used toward the minor requirement. CS Special Topics classes (CS 88XX) will not be considered for use toward the PhD minor.

## Non-ECE Classes

Special Topic classes (88XX) cannot be used toward the minor requirement, but they may be used as elective classes. Students wishing to use non-ECE classes, including Special Topics (88XX), toward an ECE graduate degree must follow the procedure below to obtain permission to use the classes:

At least four weeks (and no fewer than three weeks) prior to the first day of the final phase of registration for the term in which the non-ECE is offered, the student must provide either a hard copy or a link to electronic media outlining the course for which approval is sought. At a minimum, the following must be provided:

- Course number and name, course instructor's name and contact information (ie. Email address or phone number)

- Textbook(s)—if any—to be used for the course

- Prerequisites (if any) for the class

- Lecture topics to be presented throughout the course

- Grading requirements for the class

Upon receipt of the course outline, the information will be forwarded to the appropriate ECE TIG to determine whether or not the class can be used toward the minor and whether the class can be used only for the MS minor, for the PhD minor, for the minor for either degree, or cannot be used as a minor course at all. Courses not approved for use toward the minor may be approved for use as electives by the reviewing faculty member. When the faculty advises the ECE Graduate Affairs Office of a decision regarding use of the special topic, the student will be notified. The faculty's decision is final and is not subject to negotiation.

Requests submitted after the stated deadline **will not** be considered. Students may use non-ECE classes toward the Group IV (Elective) portion of the coursework requirements without undergoing the procedure above. If concerns arise about any other course selected, the student will be contacted to provide additional information before an approval decision is made.

## The Professional Communications Requirement

- All ECE PhD students are required to complete a professional communications class in order to fulfill the PhD coursework requirement.
- Students entering the PhD program prior to Fall 2006 will have the option to use either ECE 8022 (Professional Communications Seminar) or ECE 8020 (Professional Communications Skills) toward the professional communications requirement.
- Students entering the PhD program in Fall 2006 or later will be required to take ECE 8022, the one-hour professional communications seminar, in order to complete this requirement.
- Students who have completed ECE 8022 may be required by their research advisor or their proposal review committee to take ECE 8020 (Professional Communication Skills) to strengthen their written and/or oral communication abilities.
- Students using the one-hour professional communications seminar toward the PhD coursework requirement will need a minimum of two additional hours to meet the requirement of 43 hours of classes for the PhD degree.
- The additional hours may be either letter grade or pass/fail hours.
- The only pass fail hours that can be used to complete the PhD coursework requirement are ECE seminars (ECE 8001, 8002, or 6792).
- Students using additional letter grade classes to complete the coursework requirement will likely have a minimum of 44 hours to be counted toward coursework completion.
- Senior (4XXX) and Graduate (6XXX and above) level ECE and non-ECE classes will be considered for approval to be used in completing the PhD coursework requirement.
- No more than a total of nine hours of 4XXX level classes can be used toward the PhD degree.
- Use of non-technical classes will most likely not be approved.
- The PhD coursework plan must clearly reflect the student's intended professional communication choice as well as show what additional hours will be used to offset the use of the one-hour seminar instead of the three-hour class.
- Students (only those entering the PhD program before Fall 2006) who opt to take the three-hour professional communications class (ECE 8020) must have passed the PhD preliminary examination, selected an advisor, and completed sufficient research to be able to effectively participate in the class.
- Students who take the one-hour professional communications seminar need to be classified as "PhD" and have passed the preliminary examination to qualify to take ECE 8022.

## Filing a Coursework Plan

- All ECE PhD students are required to file a coursework plan by Drop Day of their first term of study.
- Coursework plans are filed through a secure ECE website (<https://secure2.ece.gatech.edu/PHP/gradforms/login.php>)
- When filing a coursework plan it is important to be sure to select the campus at which one is based. The system is set up so that the coursework plan is not saved unless a campus is selected.

- In addition to clicking the “Save” button when the coursework plan is completed, the “Submit” button should be clicked as well. Plans for which “Submit” has been clicked will be added to the list of those ready to be reviewed by our office.

### Applying MS Coursework Completed at other Schools toward the PhD Coursework Requirement

There is no formal transfer of MS coursework completed at other schools to be used toward the ECE PhD coursework requirement. An approved PhD coursework plan serves as an agreement between the student and ECE (on behalf of Georgia Tech) to permit the student to count courses from another school toward the PhD coursework requirement.

- When submitting the coursework plan for the PhD degree, students who have completed an ECE MS degree will list classes completed at the MS school along with classes to be completed at Georgia Tech.
- These classes should be listed as they appear on the MS school's transcript, using that school's number (if any), course name, grade awarded.
- The credit hours for classes completed elsewhere should be reported in semester hours.
  - If the MS classes were recorded in quarter hours, those hours are to be converted to semester hours by multiplying the number of quarter hours by 2/3, making a three quarter hour class equal to two semester hours.
- If a thesis was completed at the MS school, it may be possible to apply up to 12 semester hours of thesis credit toward the 43 hour PhD coursework requirement. The following items are needed in order for this option to be considered for approval:
  - English version of the MS thesis
  - Documentation on the official transcript of completion of the MS with a thesis
  - Completion of MS thesis research hours on the MS school's transcript
- Approval of the PhD coursework plan by the ECE Graduate Affairs Office serves as documentation that the courses and/or thesis hours will be used toward the ECE PhD coursework requirement.
- Students who do not list all graduate schools attended on their application for graduate school admission cannot use classes from those schools toward the PhD coursework requirement.
- Six hours of the previously completed coursework that was transferred toward a Georgia Tech ECE MS degree may be applied toward the PhD coursework requirement. The process for transferring classes is described elsewhere in this handbook.

### Pass/Fail Hours

- The Professional Communications classes (ECE 8022) and Research Seminar (ECE 8010) are required courses for the PhD degree and are only offered on a pass/fail basis.
- PhD students using ECE 8022 (Professional Communications Seminar) to fulfill the professional communications requirement, may apply two additional pass/fail hours toward the PhD coursework requirement provided those two hours are ECE seminars (8001, 8002, 6792).
- Other courses taken on a pass/fail basis would strictly be for the student's own edification and will not be counted in the 43 hours required for the degree.

## Preliminary Examination

- The PhD Preliminary Exam is given each fall (on the Monday of the Fall Semester mid-term break) and Spring Semester (on a Saturday approximately seven weeks into spring semester).
- Students intending to take the exam must submit a registration form to the ECE Graduate Affairs Office by the deadline indicated on the form. The registration form is available on the ECE website. Registration for the prelim exam is open to all ECE graduate students.
- ECE undergraduate students with GPAs of 3.5 or higher may also register for the exam.
- Students admitted with the PhD classification and MS students intending to pursue the PhD degree should take the exam at the earliest opportunity.
  
- Students classified as PhD at the time of admission must pass the PhD Preliminary Examination within their first four semesters (not counting summer sessions) in the program.
- Students not classified as PhD must pass the exam within two semesters of the completion of 30 hours of “earned” credit (including any transfer credits that may have been approved).
- Students admitted into the graduate program as MS students must pass the prelim exam to be reclassified as PhD students.
- Students entering the PhD program with a completed MS degree from another school are expected to pass the prelim exam within their first two semesters in the PhD program.
- **Students should take the prelim exam early in their graduate studies.**
  
- Regardless of the stipulations above, all students are permitted three opportunities to take the exam while enrolled in the graduate program at Georgia Tech. **Failure to take the prelim exam when it is offered is considered to be a missed opportunity.** A student who does not take the Exam during a term in which it is offered is forfeiting an opportunity. Students registering for their final attempt to take the Preliminary Exam must sign a letter of agreement acknowledging that they are taking the test for the final time and that they agree to leave the program if they do not pass.
  
- Students who are unable to take the prelim exam for reasons beyond their control (illness, family emergency, etc), should contact the Associate Chair for Graduate Affairs as soon as they know that they cannot take the exam. Every effort must be made to advise the Associate Chair for Graduate Affairs of an absence from the exam before the examination starts, not after the test has been given.

## Non-Engineering Background Students

- Students entering the ECE graduate program with non-engineering backgrounds will be admitted as MS students. Those wishing to pursue the Ph.D. degree are permitted up to two semesters **at the start of their studies** to complete background courses that would enable them to prepare for the preliminary exam. The background courses are listed in the Preliminary Examination Study Guide which is available on ECE’s website.
- Non-engineering students who are taking background classes to prepare for the PhD preliminary exam will not take the exam during the time that they are taking preparatory classes. These students must still pass the prelim exam within two semesters of completing the MS/MSECE degree or of completing 30 hours of earned graduate credit. However, it is understood that the student may be "in residence" for one year before beginning the MS requirements.

- Students entering the ECE graduate program with non-ECE engineering backgrounds are permitted one semester to take courses to supplement their background before restrictions regarding the Preliminary Exam are applied. These students will not take the prelim exam until after the background courses are completed.

### Examination Format

- The Preliminary Examination is administered in a double-blind fashion. The ECE Graduate Affairs Office issues the exam code numbers to students taking the exam. Each student records their code number on the materials submitted for grading; no name is recorded on the exam materials. Generally, the faculty is unaware who has taken the preliminary exam or what scores were earned unless students chose to share that information. Students are not provided with information regarding the specific faculty members responsible for prelim exam questions.
- A score of 65% is needed in order to pass the exam.
- The prelim exam consists of 25 problems from both ECE undergraduate core courses and elective courses. There are 16 core problems covering the sub-disciplines offered through the School of Electrical Engineering and Computer Engineering's undergraduate programs. In addition to the core problems there are 9 additional problems from 3000 and 4000-level undergraduate courses from several discipline-specific areas within ECE.
- From the 25 problems of the overall examination, each student must select eight to work and submit for grading. Students are given four hours to work the exam problems.
- The exam topics are listed in the ECE Preliminary Examination Study Guide which is available on the ECE website. ECE undergraduate courses listed in parenthesis throughout the study guide represent those from which material to be covered on the exam may be drawn.

### Advisor Selection

- After passing the PhD Preliminary Examination, a student is expected to identify a research advisor and report that advisor's name to the ECE Office for Graduate Affairs.
- An advisor selection should be reported before the end of the term during which the student passes the Preliminary Examination.
- It may be necessary and appropriate for a student to change advisors during the process of identifying a suitable dissertation topic.
- Any change should be coordinated through the ECE Graduate Affairs Office.

### Dissertation Proposal

#### Timing of the Proposal Exam

- The student is expected to make reasonable and consistent progress toward identifying a PhD dissertation topic, which typically involves performing preliminary research under the guidance of the advisor. Once the student and advisor identify a mutually satisfactory dissertation topic, the student should plan to take the Proposal Examination.
- The student must also complete all course requirements for the PhD degree, including the Professional Communications requirement (ECE 8022), before taking the Proposal Examination.

- A student is expected to schedule the Proposal Examination within two years of passing the Preliminary Examination, and within three years of beginning the graduate program.
- The Proposal Exam should occur approximately one year prior to the Final Defense Examination, and must occur at least 6 months before the Defense Examination.
- Under no circumstances will the student be allowed to take the Proposal and Defense Exams during the same term.
- Purpose of the Proposal Examination
  - Allow the committee to judge the student's ability to execute a research task and to communicate the results.
  - Evaluate the proposed topic to ensure that, if completed as posed, it constitutes an original contribution to knowledge.
- Students may pass the proposal examination and go on to complete the remaining dissertation research with reservations from the proposal committee. If the committee has reservations, a "conditional pass" may be indicated, noting that one or more of the following is expected of the student:
  - completion of additional courses that the committee feels are important for proper preparation
  - continuing the preliminary research until a better definition of a proposed topic is forthcoming
  - improving oral presentation skills
  - improving written communication skills
- Additional concerns determined by the committee may also apply and should be communicated to the student and advisor in writing.
- Unless the arrangements for a conditional pass specifically require that the oral presentation be repeated, it generally does not need to be done again.
- The committee may also consider the student's proposal and/or presentation to be of insufficient quality to warrant a pass or conditional pass. If this occurs, the committee specifies to the student (advisor and ECE Graduate Affairs) exactly what is required of the student.

#### Proposal Format

- The format for the Proposal Examination involves a written report and an oral presentation.
- The written report consists of two sections. Section 1 is a written summary of some or all of the research performed to date by the student, presented as a coherent report. This section must include a literature survey, a statement of the problem under investigation, a report of the approach taken, and some preliminary results.
- Section 1 of the proposal is prepared independently with no input from the advisor, lab mates or other outside sources.
- Section 2 of the proposal should include a concise statement of the PhD dissertation topic, including the expected title of the dissertation and an abstract. It should summarize the process

and expected contributions of the research. The advisor may provide guidance for Section 2 of the proposal.

- The length of the proposal document may vary, but a nominal standard is 20 pages of text (not including figures, tables, and references) for Section 1 and a total length of 5-10 pages for Section 2.
- While it is expected that the general topic of Section 1 is the preliminary research for the dissertation, there may be situations where Section 1 describes research only loosely related to the proposed dissertation. If a student has completed an English-language Master's Thesis in ECE, for example, that thesis should represent ample evidence of a student's ability to conduct research and it may be substituted for Section 1 of the proposal document. Under such circumstances, Section 2 of the document may be somewhat more detailed. In the event that the student has been the author or co-author of published papers, the student is permitted to extract paragraphs from such papers to include in the research summary.

**Note: Section 1 of the proposal is designed to enable the examination committee to evaluate the student's ability to execute the research task and to organize and communicate the results. The student is required to prepare this part of the paper without outside assistance, including assistance from the advisor. (Exceptions to this are if an MS thesis is substituted for Section 1 or if paragraphs extracted from published papers to which the student contributed are included.) Section 2 of the proposal is expected to be prepared in collaboration with the student's advisor.**

Detailed proposal preparation guidelines are available on the ECE website at: <http://www.ece.gatech.edu/internal/students/graduate/forms/index.html>. Forms to be included with submission of the proposal are also available in the same area.

#### Proposal Exam Process

- The student submits six copies (seven if the student has an advisor and a co-advisor) of the proposal to the ECE Office for Graduate Affairs, along with the proposal review committee form which lists the proposed Reading Committee for the dissertation. Faculty should be consulted and agree to serve as members of the Reading Committee prior to submission of the proposal.
- The "Request for Admission to PhD Candidacy" is also prepared and submitted with the proposal. At the time of submission the form contains the student's name and GTID, dissertation title and abstract. Because the GT Graduate Studies Office requires original signatures on the "Request for Admission to PhD Candidacy," no signatures should be recoded on the candidacy form when it is submitted with the proposal copies.
- The Reading Committee generally consists of the advisor (and co-advisor, if applicable) and two other ECE faculty members. One of the three members may be of adjunct status or may belong to a separate School at Georgia Tech.
- The ECE Graduate Committee will assign a fourth member of the ECE faculty to serve on the Proposal Examination Committee. This faculty member will be selected without input from the student or advisor, but will usually be in a discipline closely related to that of the proposed dissertation.
- The Chair of the Proposal Examination Committee will be one of the Readers.

- Following release of the proposal and related memos to the Proposal Examination Committee, the committee chair will poll the committee as to the acceptability of the document.
- Upon agreement among the committee members, the oral examination will be scheduled. This presentation is open to the Georgia Tech community and is expected to include a presentation by the student, 30-45 minutes in duration, followed by a question and answer session.
- The presentation should focus on the background material pertinent to the proposed dissertation topic and the definition of the dissertation topic.
- The committee may choose to keep the entire question and answer session open to the public as well, or to retire into executive session with the candidate after questions from the general audience are addressed.
- Following completion of the oral examination and the committee deliberations, each committee member completes the “Written and Oral Communication Evaluation” and submits the form to the committee chair.
- The committee chair prepares the “Full Committee Report” indicating the committee’s final decision on the outcome of the proposal examination.
- The committee chair forwards the original “Full Committee Report” and the individual “Written and Oral Communication” evaluations to the ECE Graduate Affairs Office. The graduate affairs office forwards copies of both evaluations to the student.
- The committee chair also returns the edited version of the proposal to the student to use as a reference when writing the PhD dissertation.
- When the committee determines that the student has successfully passed the proposal exam, the student and the reading committee (advisor and two readers from the proposal committee) sign the “Admission to PhD Candidacy” form and submit it to the ECE Graduate Affairs Office for processing.
- In accordance with Institute requirements, a student may only attempt the proposal exam twice.
- A student who fails the proposal examination on the first attempt will be expected to consult with the Associate Chair for Graduate Affairs for guidance as to how to proceed at that point.
- Because the proposal examination may occur relatively early in the process of defining the dissertation topic, it may be necessary to modify the topic as the research progresses. Any substantial modification requires approval of the reading committee and a submission of a revised “Request for Admission to PhD Candidacy” form with the new dissertation title and abstract (and Reading Committee member signatures).
- While it may be necessary to provide the reading committee with a revised written proposal (part 2 as defined above), it will usually not be necessary to repeat the oral part of the Proposal Examination.
- The proposal should not be construed as a “binding contract” between the committee and the student, but as a somewhat flexible agreement that is expected to evolve as the research progresses.

NOTE: Guidelines for preparing and presenting the proposal are available at the “Graduate Forms and Files” area (<http://www.ece.gatech.edu/academics/graduate/internal/graduate/forms/index.html>) of the ECE website. If, at any time, there is uncertainty about what to do next or what is expected of the student, check with the ECE Graduate Affairs Office. Do not rely on secondhand information!

### Dissertation and the Final Defense

- The quality of the dissertation depends upon the conscientious work of both the student and the reading committee. The School entrusts the standards of the School in this area to this committee. A larger committee consisting of the reading committee plus at least two other faculty members, one being from outside the School of Electrical and Computer Engineering, however, administers the final examination (also known as the dissertation defense).
- This final examination committee is typically constituted from a set of professors suggested by the dissertation advisor and recommended to the Dean of the Graduate Studies – VPR office. The Dean may modify the recommended committee if so desired.
- The final examination should follow, by no less than two weeks, the submission of the finished version of the dissertation to the whole committee. The dissertation defense will be publicized and open to the academic community.
- The Certificate of Thesis Approval which is available through the Graduate Studies – VPR office website at <http://www.grad.gatech.edu/thesis/forms.html> should be signed by the final examination committee at the dissertation defense and finally by the Associate Chair for Graduate Affairs.
- This form is submitted to the Graduate Studies – VPR office.
- The Graduate Studies – VPR office controls the format of the thesis and other related reporting. The student must keep in touch with that office in order assure that all degree requirements are met. Guidelines for preparing and submitting the dissertation are available at the Graduate Studies – VPR office website ([http://www.grad.gatech.edu/thesis/thesis\\_man.html](http://www.grad.gatech.edu/thesis/thesis_man.html)).
- A document which discusses the timing of events leading up to and including the thesis defense is available at the “Graduate Forms and Files” area (<http://www.ece.gatech.edu/academics/graduate/internal/graduate/forms/index.html>) of the ECE website. The memos used in scheduling the final dissertation defense are also available in the same area.
- If, at any time, there is uncertainty about what to do next or what is expected of the student, check with the Associate Chair for Graduate Affairs. Do not rely on secondhand information!

### Degree Completion Progress

- Graduate students in the ECE degree programs are expected to make diligent progress toward the MS, MSECE, or Ph.D. degrees. It is in the best interests of both students and faculty for all students to progress through the program expeditiously. Reasonable progress is defined as follows:
- A “Ph.D. student” is defined as one who has accepted an admission offer that indicated "Ph.D." rather than "Masters" degree.
- Master’s degree students will be reclassified as Ph.D. students upon successful completion of the preliminary examination (see below).

- The Institute requires that Ph.D. students (full-time or part-time) complete all degree requirements within 7 years of passing the comprehensive examination.
- The School of Electrical and Computer Engineering defines the comprehensive examination as a combination of the written Ph.D. Preliminary Examination and the oral Ph.D. Proposal Examination, but imposes additional time limits as described below.
  - Students obtaining an MS or MSECE degree on the way to a Ph.D. degree are expected to complete the Master's degree within the first two years of graduate study.
  - Students seeking a Ph.D. degree are expected to take the ECE Preliminary Examination at each available opportunity until they pass the exam.
  - Ph.D. Students are expected to pass the Ph.D. Preliminary Examination by a certain term, depending on their situation.
  - In general, the preliminary examination must be passed within two semesters of completing the MS/MSECE degree or within two semesters of completion of 30 hours of earned graduate credit, whichever is earlier.
  - The total earned graduate credit hours appear on the GT transcript.
  - "Earned Graduate Credit" includes classes taken on letter grade basis, pass-fail basis and thesis hours.
  - Approved transfer credit hours will also be included in the total.
- Students are expected to identify a Ph.D. research advisor as early as possible in the program, and are urged to do so by the end of the term in which they pass the Preliminary Examination and no later than the term following the one in which they pass the Prelim.
- The Ph.D. Graduate Research Seminar, ECE 8010, is designed to provide an opportunity for all Ph.D. students to identify a suitable research group. This course should be taken as early as possible, preferably during the students first two semesters in the program.
- Each individual student must take the initiative to connect with an advisor within technical interest area.
- Some students may find it necessary to change advisors at some point in the program. While a single change of advisor may be necessary and is understandable, advisor changes beyond one time do not reflect good progress and should not be undertaken without the guidance of the Associate Chair for Graduate Affairs.
- Ph.D. Students are expected to complete all required coursework, including the Professional Communications requirement and the minor, by the end of the third year in the program (if entering from a BS degree program) or the end of their second year in the program (if entering with an MS).
- Ph.D. students are expected to complete the graduate research seminar (ECE 8010) during their first year of residence.
- During their Ph.D. program, students are permitted an unlimited number of summer terms of non-residence, during which they may be employed as interns at industrial or government employers. A student's research advisor, however, may advise against summer leave if circumstances so dictate.
  - Students supported as GRAs are expected to coordinate internships with their advisor.

- Only one non-summer term may be used for internships or other employment without the prior permission of the ECE Associate Chair for Graduate Affairs.
- All Ph.D. students are expected to apply to take the Proposal Examination within two years of passing the Preliminary Exam, or by the end of their third year of graduate studies.
  - It is expected that the proposal examination will be successfully completed at least one year prior to the Final Defense examination, and that it **must be** completed at least 6 months in advance of the Defense Examination.
  - Students should follow the guidelines provided by the Graduate Affairs Office for the preparation of the proposal document.
- When the ECE Graduate Office determines that a Ph.D. student has not met the milestones described above, he or she will be classified as “not making reasonable progress” toward the Ph.D. degree and notified of this status immediately.
  - This notification will normally occur at the beginning of Spring or Fall semester.
  - By the end of that semester, the student must provide a written explanation to the ECE Graduate Office as to why they have not met the indicated milestones, and what action they intend to take to correct the situation.
  - A student who has not submitted a written plan for correcting these deficiencies by the end of the term in question will lose their eligibility for GTA or GRA support.
  - Students with deficiencies that are not corrected in a reasonable time will be dismissed from the Ph.D. program.
- Exceptions may be made by the Associate Chair for Graduate Affairs after reviewing the circumstances involved as presented by the student and the research advisor.

## FINANCIAL ASSISTANCE

### Financial Aid

- Financial Aid in the form of fellowships and loans is available to qualified students. Long and short-term student loans are handled through the Office of Scholarships and Financial Aid. Interested students should contact that office directly.
- Many national graduate fellowships consider applicants who are “at or near” the beginning of their graduate programs. ECE encourages qualified graduate students to apply for national graduate fellowships in their studies. Information about fellowships and links to important fellowship information can be found at <http://www.undergradstudies.gatech.edu/fellowship/index.php>.
- Students who have been awarded the President's Fellowship or other Georgia Tech supplemental fellowships are also strongly encouraged to apply for national fellowships early in their tenure at Tech.
- ECE permits faculty members whose students obtain fellowships to withdraw or reduce the GRA appointments in order to be able to fund additional students in their research groups.

### Graduate Co-Operative Program

- The Graduate Co-Operative Program provides both masters and doctoral students with opportunities to include specialized work experiences in their studies. This program is managed through the Division of Professional Practice (DoPP). Information on this program can be obtained by phone at 404-894-3320 or through the DoPP website (<http://www.gradcoop.gatech.edu>).
- Students who apply for assignments through the Graduate Cooperative Program must advise the ECE Graduate Affairs Office of their intentions **before** participation can be approved.
  - A co-op approval request form is available on the ECE website in the Graduate Forms and Files area (<http://www.ece.gatech.edu/academics/graduate/internal/graduate/forms/index.html>).
  - This paperwork should be signed by the research advisor (where applicable) indicating that the plans outlined are approved before the forms are submitted to the ECE Graduate Office for approval.
  - An offer letter from the co-op company should be provided along with the co-op approval form.
  - Independently arranged internships should also be reported to the Division of Professional Practice.
  - Handling an internship through the co-op office provides documentation on the work on the GT transcript.

- While ECE students are welcome to participate in the Graduate Co-Operative Program (co-op), attention should be paid to the academic calendar when making arrangements to co-op. ECE does not encourage our students to co-op during Fall and Spring semesters as a significant number of courses are offered in these two terms and most faculty are on campus. ECE graduate students seeking outside work assignments should plan to be gone during summer term and be in school during fall and spring.
- Students may be permitted to spend one regular semester as an intern/co-op in an industrial or government position.
- Students desiring more than one semester (fall, spring) of internship/co-op or other employment must have the expressed permission of the ECE Associate Chair for Graduate Affairs.
- Subject to the approval of the research advisor, PhD students are permitted an unlimited number of summer terms of non-residence, during which they may be employed as interns/co-ops at industrial or government employers.
- A student's research advisor, however, may advise against summer leave if circumstances so dictate.
- Students supported as GRAs are expected to coordinate internships/co-ops with their advisor.
- Only one non-summer term may be used for internships/co-ops or other employment without the prior permission of the ECE Associate Chair for Graduate Affairs.
- International students who have completed less than two semesters of full-time graduate level study in ECE's graduate program may not be given approval to participate in the graduate co-op program.
- Approval to work off campus will also not be granted to any student who is not in good academic standing or is not making good progress toward the completion of their degree program.

### Graduate Assistantships

- Graduate Research and Teaching Assistantships (GRAs or GTAs) are available in the School of Electrical and Computer Engineering.
- Some students are offered assistantships shortly after they receive an offer of admission into the graduate program. Others arrange assistantships through direct contact with faculty working in an area of shared research interest.
- Those wishing to be considered for Graduate Teaching Assistantships (GTAs) in the School of Electrical and Computer Engineering may indicate their interest by filing the Position Request form on the secure website (<https://secure2.ece.gatech.edu/PHP/gradforms/login.php>).
- ECE students who wish to be considered for Graduate Research Assistantships (GRAs) should make direct contact with faculty members researching in their interest area to discuss the possibility of being hired.
- Faculty members wishing to employ a student as a GRA initiate the process by filing a hire request through a secure ECE website, providing an account number for stipend funds as well as information as to the start term and length of employment.

- Once available funds have been certified by an ECE accountant, the student will receive an offer letter that includes additional information on ECE and Institute policies and paperwork for accepting the assistantship.
- Hiring paperwork will not be initiated without completed forms.
- **No** assistantship offer in the School of Electrical and Computer Engineering is valid without an offer letter from the Associate Chair for Graduate Affairs.
- Full-time students who are employed as part-time Graduate Research or Teaching Assistants (GRA/GTAs), receive a tuition waiver in addition to the assistantship stipend. GRA/GTAs pay a \$25 matriculation fee plus the mandatory student fees, rather than regular graduate tuition and fees.
- To be eligible for the tuition waiver, GRA/GTAs must be employed at a minimum rate of one-third time (12-15 hours per week) and a maximum of half-time (20 hours per week).
- In addition to meeting the employment stipulation, GRA/GTAs are required to be registered for a minimum of 12 hours of coursework on a letter grade and/or pass fail basis.
- ECE requires that all students who hold GRAs carry a total load of 21 hours in fall and spring semesters, 16 hours in summer term.
- ECE 8997 (Teaching Assistantship) and ECE 8998 (Research Assistantship) are used to indicate the position in which a student is employed as well as document the percent time at which the student was hired and the campus at which the assistantship is based.
- Employment as a GRA or GTA must be recorded with the Institute.
- GRA/GTAs must be hired no later than the end of the final registration period for the term.
- Students who fail to meet one of these criteria are assessed full tuition and fees based on their residency status.
- It is the responsibility of the hiring faculty member to supervise the assistantship efforts of the students in their employ each term.
- It is the responsibility of the student to insure that all criteria necessary for fee reduction eligibility are met and that the assistantship supervisor's employment requirements are fulfilled.
- The ECE Graduate Affairs Office monitors the registration status of students with GRA/GTAs. Email messages are sent to individuals who are not registered properly or have underpaid their tuition and fees.
- Do not ignore an "improper registration" message. Failure to comply with Institute requirements may result in a loss of the fee waiver, cancellation of classes, or loss of employment.
- More specific details regarding employment as a GRA/GTA are available in the ECE Graduate Assistant Handbook located on the ECE website.
- ECE graduate students are permitted to seek GRA/GTA appointments outside of ECE.
- The hiring department must report the appointment to the ECE Accounting Office so that the assistantship waiver can be recorded.
- Graduate students cannot be employed at more than a total of 50% (20 hours per week).

## Hourly Appointments

- Georgia Institute of Technology applies significant restrictions to the hiring of graduate students on an hourly basis.
- Hourly appointments **must be** approved by the Associate Chair for Graduate Affairs **before** the student is hired.
- The Associate Chair for Graduate Affairs must be able to justify the hourly appointment to the College of Engineering and the GT Graduate Studies Office.
- Students who are employed must be registered and will pay tuition and fees based on their residency status for the course hours in which they are registered.
- Hourly appointments can only be used as an interim status in a single term. Students who obtain hourly appointments cannot work more than six weeks in a term and cannot work more than half (50%) time.
- In subsequent terms, the hourly employed student must be appointed as a Graduate Research or Teaching Assistant or have graduated and no longer be employed in a student position Tech.
- Hourly appointments are not eligible for the tuition waiver provided to students with GRA/GTA appointments.
- Students supported as GRAs in the previous semester, cannot be hired on an hourly basis in summer without sufficient documentation to satisfy the College of Engineering that the hourly appointment is justified.
- Faculty planning to hire students on an hourly basis **must** contact the Associate Chair for Graduate Affairs for clearance for the hourly hire **before** making a commitment to the student.

## Tuition Waivers

- Georgia Tech provides a limited number of out-of-state tuition waivers to exceptional graduate students. These waivers permit full-time students to pay Georgia resident fees instead of out-of-state fees.
- Most if not all of these waivers are used to fulfill agreements made with external funding agencies such as The Fulbright Commission.
- ECE submits nominations for tuition waivers to the Office of Student Financial Planning and Services each term.
- Students wishing to be considered for a tuition waiver nomination submit a request for nomination of a tuition waiver form which is located on the ECE website.
- International students who have not been awarded a “Waiver with Admission” must have completed a minimum of two full-time semesters as a graduate student before they can be considered for an out-of-state tuition waiver.
- When submitting a request to be nominated for a tuition waiver, an explanation of the reason for the request should be included. This helps both the ECE Graduate Affairs Office and the Office of Student Financial Planning and Services with decisions.
- Students are notified of their waiver status after decisions are made by the Office of Student Financial Planning and Services.
- Military personnel and international students who are becoming permanent residents of the US should contact the Registrar’s Office for tuition waivers specific to their statuses.

## GRADUATION

- The culmination of the efforts made to fulfill the MS and/or PhD degree requirements is the awarding of the degree – GRADUATION!
- In order to become a degree candidate, it is necessary to submit a degree petition packet.
- Downloadable versions of the forms needed to complete a degree petition packet are available from the Current Student Resources Menu in the “Academics” area of the ECE website.
- An “Exit Survey” is required as part of the degree petition package. The exit survey is not available as a downloadable form. Originals of the exit survey may be obtained in the ECE Academic Affairs Office (Room W208, Van Leer).
- Distance learning and other off-campus students may obtain the “Exit Survey” by sending an email request for the survey, along with their name and mailing address, to <http://www.ece.gatech.edu/academics/graduate/contact.html>.
- **Master’s and Ph.D. degree packets differ slightly from each other:**
  - Ph.D. students submit the “Graduate Petition for Degree,” the “M.S. and Ph.D. Graduation Information” form and the exit survey.
  - M.S. students submit the “Graduate Petition for Degree,” the “M.S. and Ph.D. Graduation Information” form, the “Classes by TIA” form with classes to be used toward the degree circles, and the exit survey.
  - A photo of the student must accompany petitions for either degree.

### Degree Petition Submission

- The completed “Graduate Petition for Degree” and all related forms must be submitted to the ECE Graduate Affairs Office **by the deadlines outlined in the chart below:**

|                                | <b>Fall Graduation</b> | <b>Spring Graduation</b> | <b>Summer Graduation</b> |
|--------------------------------|------------------------|--------------------------|--------------------------|
| <b>ECE submission deadline</b> | <b>June 1*</b>         | <b>October 1*</b>        | <b>March 1*</b>          |
| <b>GT submission deadline</b>  | <b>June 15**</b>       | <b>October 15**</b>      | <b>March 15**</b>        |

- If the ECE submission deadline (June 1, October 1, March 1) falls on a weekend, degree petitions will be accepted on the Monday immediately following.
- All degree petition materials must be submitted at the same time.
- Students petitioning for the thesis option MS or MSECE or the PhD degree should obtain the signature of their research advisors on the “Graduate Petition for Degree” before submitting the form to the ECE Graduate Affairs Office.
- Due to the volume of degree petitions processed each term late petitions will be accepted at the discretion of the ECE Graduate Affairs Office.

- The ECE Graduate Affairs Office reviews all petitions and submits them to the Registrar's Office on behalf of the student.
- If the degree petition cannot be approved as submitted, the student will be notified by email.
- Failure to respond to an indication that the petition cannot be approved will result in the petition not being submitted to the Registrar's Office.
- Students are notified by the ECE Graduate Affairs Office when the petition is submitted to the Registrar's Office.
- After the petition is processed by the Registrar's Office, its status may be checked via the OSCAR system.
- The GT Degree Office contacts students after they process degree petitions. They will seek confirmation of the information to be printed on the diploma including (but not limited to) name and degree to be awarded. The deadline to respond for corrections is generally Drop Day of the graduation term.
- It is important that students review the diploma information sent to them by the Degree Office. Changes to the diploma (including the degree conferred) cannot be made after the diploma is printed.
- It is the responsibility of each graduating student to check their graduation status, verify that the personal and degree information recorded are correct, and determine what, if anything, is needed to be cleared for graduation purposes.
- Graduation status can change as late as the day before graduation, so it is wise to check the graduation status frequently especially in the last week or two of the term.

### Enrollment in the Graduation Term

- It is an Institute requirement that students be enrolled for a minimum of three hours in the term in which they graduate.
- MS thesis option and PhD students who have no requirement to be enrolled on a full-time basis (i.e. no GRA or GTA, no fellowship support, no visa requirements) are permitted to register for a single hour **in their final term**. The one-hour option can only be used **one time**. Students who do not graduate in their expected term may have to enroll in the next term in order to graduate.
- Students who complete all of their degree requirements before the close of registration in the next term, may be eligible to graduate without being enrolled. This option is also only available on a one-time basis.
- In order to request an enrollment waiver, the student must complete a form (signed by the thesis advisor - where applicable - and the ECE Graduate Affairs Office) certifying that all degree requirements have been met and that the student will not be making use of any of Georgia Tech's facilities during the term of graduation.
- In cases where a thesis is being submitted, this waiver is filed with the required thesis submission paperwork after the thesis or dissertation has been uploaded electronically.
- Where a thesis is not required, the enrollment waiver is filed with the degree petition.

**NOTE: International students (those of F or J visas) who plan to register for less than a full-time course load in their graduation term must file additional paperwork with the Office of International Education. Failure to do so, could result in the student being considered "out of status" in their final term.**

Candidates for degrees are not required to attend commencement. However, Georgia Tech's commencement program is worth attending. Information concerning each commencement is available on the GT website at: <http://www.gatech.edu/commencement>.

## Graduation Invitation Letters

It is Georgia Tech policy that **neither academic nor administrative units** provide “Graduation Invitation Letters.” Student wishing to have family members who would need visas in order to enter the U.S. attend their graduation ceremony may write invitation letters for those their relatives, but no official letter from ECE or Georgia Tech will be issued.

The counselors in the Office of International Education can provide further guidance to students seeking to have family members who need visas in order to attend a graduation ceremony.

## For Distance Learning Students

- It is Georgia Institute of Technology policy that distance-learning students must graduate in the term following the one in which they complete their degree requirements.
- In addition to submitting the degree petition materials mentioned above, distance-learning students must include a completed enrollment waiver form with their degree petitions.
- The DLPE office requires that all degree petition materials for distance learning students be submitted to their office. They will forward the petition materials to ECE’s Graduate Affairs Office for further processing.
- Distance Learning students must file their degree petitions and related forms with DLPE in a timely manner so that the materials can be processed by ECE in time to meet the degree petition submission deadline set by the registrar’s office.
- Late and/or incomplete degree petitions will be processed at ECE’s discretion.

## Preparing the Degree Petition Materials

- To insure timely processing of the degree petition, all ECE graduate students should follow the procedures below:

Download the “Graduate Petition for Degree” and other degree petition related forms from the Student Resources menu in the “Academics” area of the ECE website.

Carefully read the instructions included with the “Graduate Petition for Degree” and complete all forms.

## Fill out the “Graduate Petition for Degree”

- On the “Graduate Petition for Degree” complete Sections 1, 2 and 3.
  - In Section 1, be sure to indicate whether the petition is a new one or a reactivation of a petition that was previously submitted.
  - Record the term and year for which the degree petition is being submitted.
  - Mark the program (Masters or Doctor of Philosophy) for which the petition is being submitted.
  - Master’s degree students must also select either the designated or non-designated MS degree in Section 1 of the “Graduate Petition for Degree.”
  - In most cases, the “Major School” and the “Major” will be ECE. Non-ECE students who have permission to seek the ECE Master’s degree will indicate their “ECE” in the “Major” area, but their home school (or department) in the “Major School” area.

- In Section 2 of the “Graduate Petition for Degree,” MS students will indicate the classes they will use to fulfill the degree requirements:
  - In Section 2A, list all completed courses (those for which an official grade has been recorded), this includes required ECE, minor, and elective courses.
  - Transfer courses are also listed in Section 2A.
    - Transfer of classes should be completed before the degree petition is submitted for approval.
    - The grades listed for transfer classes should be "T."
  - Former Georgia Institute of Technology undergraduate students who are double counting or using additional hours (see section XIII of this handbook for details) from their undergraduate studies should record those classes in Section 2A as well, using "UG" as the grade.
  - In Section 2B, list all incomplete courses (those for which an official grade has not yet been recorded). Be sure to include the current term courses and (where applicable) those to be taken in the future term.
  - A minimum of 30 hours of classes that fulfill degree requirements should be listed in Sections 2A and 2B.
  - In Section 2C, indicate the hours for each of the categories in “Total Semester Hour Requirements” area for the MS degree. Count the number of ECE hours (at the 4000, 6000 and higher level) as well as the number of 6000 and higher level hours (regardless of the class major area) and record the totals in the proper places.
  - ECE MS thesis option students must show a minimum of 12 hours of ECE 7000 in the “Thesis hrs 6000-9000 Level” area in order to meet degree requirements.

#### ECE Courses by TIA (Technical Interest Area)

This sheet is submitted with the completed “Graduate Petition for Degree” for the master’s degree. ECE graduate level courses to be used toward the master’s degree are to be circled on the “Classes by TIA” form. The student's name should be recorded on the top of the sheet as well. This information is used as a cross-check to be sure the degree requirements are met before the degree petition is approved.

#### ECE MS and PhD Graduation Information Sheet

This form needs to be completed and a recent photo of the graduate student attached. This is a two-page form, be absolutely certain to complete both pages! The photo may be color or black and white, and reasonable size. The photo **IS** required! No exceptions! Digital photos are acceptable.

### Enrollment Waiver Form

**Note for Distance Learning Students (and other students who will not be enrolled in the term of graduation)** - Because of the Georgia Tech policy that distance students cannot graduate until the term after the one in which they complete their coursework, it is necessary to file an Enrollment Waiver along with the degree petition materials. This form requests a waiver of the requirement that a student be registered for a minimum of three hours in the term of graduation. Please note that this waiver can only be requested one time per degree.

### Exit Survey

**All ECE students**, regardless of degree program, must complete and submit the exit survey with their degree petition materials. Off-campus/distance learning students must send their name and mailing address in a request through the “Contact Us” site to have the exit survey sent to them.

### Students Outside of Atlanta

**GTL students** submit their degree petition materials to the Academic Affairs Office in Lorraine for further processing before the petitions are sent to Atlanta.

**GT Savannah students** submit their degree petition materials to the ECE Graduate Affairs Office in Atlanta.

**GT Shanghai students** submit their degree petition materials to the GT Shanghai office in Atlanta.

**Distance learning students** mail their degree petitions to the Distance Learning Program Coordinator in the Office of Distance Learning and Professional Education. **PLEASE DO NOT SEND THE PETITION PACKET DIRECTLY TO ECE.**

For questions regarding completion of degree petition materials or the status of the degree petition call (404-894-2983), fax (404 894-3047) or email (<http://www.ece.gatech.edu/academics/graduate/contact.html>).

All of the materials described above **must be submitted on time**. Incomplete degree petitions will not be processed. Late packets will be processed at the discretion of the ECE Graduate Affairs Office or the Georgia Tech Registrar's Office, depending upon which deadline was not met.

### Changing the Georgia Tech MS Degree Approved Program of Study

- It is not unusual for students who have petitioned for the MS degree to find it necessary to take classes other than those originally listed on the “Graduate Petition for Degree.”
- When this happens, it is necessary to file a request to correct the course list.
- To request approval for the change(s), the student files a request through the ECE website: [http://www.ece.gatech.edu/internal/students/graduate/request\\_change\\_ms\\_pos.html](http://www.ece.gatech.edu/internal/students/graduate/request_change_ms_pos.html).

- Provide all information requested and submit the change for review.
- Approved change requests are forwarded to the Registrar's Office for processing. A copy of the change request is sent to the student at the same time.
- Denied requests will be returned to the student for further action.
- Requests for approval of changes to the program of study made by any other method are not processed.

### Reactivating a Degree Petition

- Students who do not graduate in the term for which they petitioned, must submit a reactivation petition when they are ready to graduate. Only the “Graduate Petition for Degree” is needed, the other ECE-specific materials do not need to be filed again.
- MS reactivation petitions should include the listing of classes to be used toward the degree in Sections 2A and 2B of the reactivation petition.
- Reactivation petitions **must** be filed no later than the close of the final registration period in the proposed graduation term.

## IMPORTANT INFORMATION FOR ALL STUDENTS

### Absence from School

ECE students are expected to complete their degrees in a timely manner. It is understood that professional conferences, internships, cooperative employment opportunities, vacations, family obligations, and personal emergencies may warrant time away from school. Because other entities in- or outside of Georgia Tech may expect the ECE Graduate Affairs Office to know the location of our students, those traveling away from school are requested to file a Notice of Absence with the graduate affairs office before any absence from school that occurs during times other than official break periods or when Georgia Tech is officially closed (weekends, holidays, etc.) In addition, accurate student contact information must be maintained on the OSCAR system. The ECE Notice of Absence form is located on the ECE website.

International students (those holding F or J visas) must check in with the Office of International Education before traveling away from Georgia Tech. Students traveling abroad should be aware of global conditions that may impede their return to Tech.

International students should also be aware that the only term that they are able to take as a “vacation term” is summer. International students should take care to make travel plans with this stipulation in mind.

International PhD students seeking authorization to undertake “Optional Practical Training” (OPT) should keep in mind that all requirements excluding the dissertation must be completed in order to be recommended for the work authorization. In ECE, this means that completion of the PhD proposal process (including the oral exam, submission of the signed “Admission to Candidacy” form, and the minor letter) is **required** before such authorization will be considered.

All students, regardless of their citizenship status, are expected to plan leave time based upon the official Georgia Institute of Technology calendar maintained by the Registrar’s Office.

Graduate Research and Teaching Assistantships are part-time, temporary positions. As such, students employed in those positions do not accrue vacation or sick time. Students (including those with GRAs or GTAs) wishing to take vacations should do so in accordance with the official school calendar.

Vacations or other non-emergency leaves should not be taken during the official period of a term. Plans should be made so that students who take leave are back on campus no later than the first day of classes and do not leave for a significant period (other than official school holidays) until after the close of the term. Graduate classes may meet in the first session of each term. Missing class can have significant consequences later in the term.

In situations in which PhD students and/or MS thesis option students are permitted by their research advisor to be gone from campus during a term, every effort must be made to limit the time away from campus. Students who are supported with Graduate Research or Teaching Assistantships must comply

with GT requirements for funding and fulfill the commitments required in compliance with the employment opportunity they accept.

Students travelling away from campus during times other than formal break periods (or who will be away from campus longer than a scheduled break period), must file an “Absence Request” form with the ECE Graduate Affairs Office. This form is prepared by the student and must be reviewed by the student’s advisor. If the advisor supports the absence request, they should sign the form which is then submitted to the ECE Graduate Affairs Office for a final review and approval decision. Not all absence requests are approved.

### Additional Coursework

- The coursework requirements for both the MS and PhD degrees are minimum requirements.
- Students are encouraged to expand their background and their horizons by taking additional courses. This is especially true for MS students in their final term, PhD students who are doing research on a full-time basis and want a change of pace, etc.
- Potential employers look favorably upon applicants who have taken the initiative to broaden and deepen their education.
- Taking advantage of the variety of educational options offered at Georgia Institute of Technology is easier as an active student than as a mortgage-holding, tax-paying, full-time member of the work force.
- Students should not, however, delay their graduation to take additional classes without first consulting the ECE Graduate Affairs Office.

### Alternative Study Opportunities

#### Distance Learning

The MS degree in Electrical and Computer Engineering is offered through a distance learning program. Detailed information about this program is available at [www.dlpe.gatech.edu](http://www.dlpe.gatech.edu).

Most distance learning students are admitted directly into the distance learning program. Occasionally an on campus student may wish to switch to distance learning. An email request to <http://www.ece.gatech.edu/academics/graduate/contact.html> is the best way to start this process. No change from on campus to distance learning is made until after the student has contacted the distance learning program coordinator.

#### Georgia Tech – Lorraine

Georgia Tech operates a graduate electrical and computer engineering program at its campus in Metz, France. Nestled in Technopole 2000, an industrial park on the outskirts of Metz, Georgia Tech Lorraine offers a program leading to the MS, MSECE, and Ph.D. School of Electrical and Computer Engineering faculty members in residence at GTL teach classes. Dual degree programs with French “partner schools” area also available. For information about opportunities for study at GTL, please contact Professor Steven McLaughlin, Deputy Director at Georgia Tech Lorraine at 404-894-6617 or visit the GTL website at: <http://www.georgiatech-metz.fr>.

#### Georgia Tech – Savannah

Located in the historic port of Savannah, Georgia Tech Savannah (also know as GTREP-Georgia Tech Regional Engineering Program) offers a unique graduate experience. MS and PhD degrees may be

completed through studies undertaken at Georgia Tech Savannah. Students may be admitted directly into the GTREP program. The opportunity to research in Savannah after completing coursework requirements in Atlanta is also available for those interested. More information on the programs offered and research underway at Georgia Tech Savannah is located on their website:

<http://www.gtsav.gatech.edu>.

### Georgia Tech – Shanghai

Located at the Minhang campus of Shanghai Jiao Tong University (SJTU), this program offers the non-thesis MS degree to interested students from China, the USA, and elsewhere. Chinese students should participate through the Dual-MS degree program with SJTU earning a non-thesis MS degree from Georgia Tech and a thesis MS degree from SJTU. Georgia Tech – Atlanta students are encouraged to spend a summer term in Shanghai when many Georgia Tech graduate courses are available and cultural course opportunities exist. Georgia Tech – Shanghai students are encouraged to spend a spring semester in Atlanta as visiting researchers or full-time exchange students. More information about this program can be found on the Georgia Tech – Shanghai website <http://www.shanghai.gatech.edu> or by contacting the Georgia Tech – Shanghai Program Coordinator Chelcea Warren at 404-385-5753.

### Multidisciplinary Programs

In addition to the specialization within electrical engineering, the School participates actively in several multidisciplinary certificate programs. These programs consist of groupings of courses that cut across existing disciplinary lines and address specific application areas. A student who successfully completes one of the multidisciplinary programs will receive a certificate from the College of Engineering in addition to the degree in electrical engineering. Current information on these programs can be found on the Graduate Affairs website.

The School also participates in the MS and Ph.D. degree programs in Bioengineering. Students seeking admission to these programs must apply through the Bioengineering Center.

### Audit Hours

- The GRA/GTA marker courses ECE 8998 and 8997 are the only audit hours that ECE students should be using toward their full-time course loads.
- More on these marker classes is included in the ECE Assistantship Handbook.
- ECE classes are not offered on an audit basis, therefore, no ECE courses other than ECE 8997 or 8998 can be scheduled on an audit basis.
- Students wishing to take classes in other schools or departments on an audit basis must contact the ECE Graduate Affairs Office for permission to do so **before** registering for the class(es).
- It is preferred that such requests be filed by email to <http://www.ece.gatech.edu/academics/graduate/contact.html> . The email request should include the student’s name, GTID (9 digits, starts with “9”), the class(es) to be audited and the reason for taking the classes on an audit rather than letter grade basis.
- Since ECE classes are only offered on a letter grade basis, students wishing to take an ECE class on an audit basis may only do so informally by “sitting in” on the class.
- Arrangements to “sit in” must be made with the course instructor.
- Whatever criteria set by the course instructor for “sitting in” must be adhered to by the student.

## Certification Letters

Graduate students may find that they are requested to provide documentation of their academic status or verification of employment to entities outside of Georgia Institute of Technology. The Office of Human Resources (OHR) is the official source for employment verification information. The Registrar's Office is responsible for providing documentation related to academic matters. The ECE Graduate Affairs Office does not provide documentation of either employment or academic status.

To request documentation of a teaching or research assistantship you should go to: [www.ohr.gatech.edu](http://www.ohr.gatech.edu) and select "Employment Verification" from the menu on the left side of the page. On the next page, select "Employment Verifications Consent Form" from the right side of the next page. Please refer to the "Records FAQ" and "Records Office Contact List" for additional assistance in filing your certification letter request.

Requests for certification of enrollment, academic standing, etc. can be filed through OSCAR (<https://oscar.gatech.edu>) or through the Registrar's Office website ([www.registrar.gatech.edu](http://www.registrar.gatech.edu)). From the Registrar's website, select the "Students" tab, then "Forms & Student Records" from the menu on the left and "Certifications/Verifications." Select the option that best describes your certification need and follow the directions to file a request. Through OSCAR, log in using the Secure Access Login, then select "Student Services and Financial Aid" and "Student Records." Scroll down the list to "Request Verification" and file your request.

Both the Registrar's and Human Resources websites provide information about the time needed to process certification requests and assistance to guide you through the request process.

## Change Course Grade Basis

Changes approved in 2009 permit students to change the grade basis of classes in which they are registered through "Drop Day" each term. In order to be able to make a change in the grade basis of a course, it must be offered with multiple options (letter grade, pass fail, and/or audit). With the exception of research and assistantship marker courses, ECE classes are only offered on a letter grade basis.

Care should be taken to remain within the degree requirement parameters when seeking to make grade basis changes for both ECE and Non-ECE classes. One could delay completion of the degree by opting to take a class on a pass fail or audit basis since ECE restricts the use of pass fail hours toward graduate coursework requirements and does not approve the use of audit hours other than those associated with the marker courses that document employment as a graduate research or teaching assistantship (ECE 8998 and 8997).

## Communication with Students

- The Georgia Institute of Technology email account (also known as the "gt" or "prism" account) is the official means of communication with Georgia Tech students.
- All ECE graduate students are required to activate their "gt" email accounts.

- Students who prefer to use an email service other than the “gt” email as their primary account, **must** arrange for messages sent to the “gt” address to be forwarded to the preferred email address.
- The ECE Graduate Affairs Office and other Georgia Tech administrative offices use the Georgia Tech email account as a means of conveying important information to students.
- It is the responsibility of each student to be aware of the information sent by email.
- Deadline reminders are sent by the Graduate Affairs Office as a courtesy. All deadline information is available on the ECE Web site. Stating that a reminder email was not received is not a valid excuse for a missed deadline. It is the student’s responsibility to know of and to meet all important deadlines.
- ECE uses two “bulk” email addresses as a means of getting information to our graduate students.
  - grads@ece.gatech.edu is used to convey academic-related information to students.
  - This email address is built from the enrollment rolls each term.
  - news\_grads@ece.gatech.edu is used to convey non-academic information, such as announcements about events in ECE, scholarships, post-graduate employment opportunities, etc. to students who are interested in receiving that information.
  - In order to receive mail from news\_grads@ece.gatech.edu, it is necessary to subscribe to the mailing list.
  - This is done through our secure website ([https://www.ece.gatech.edu/mailman/listinfo/news\\_grads](https://www.ece.gatech.edu/mailman/listinfo/news_grads)). Your Georgia Tech email address should be used when subscribing to news\_grads@ece.
- Students are required to update their personal contact information (addresses, phone numbers, etc.) with Georgia Institute of Technology through OSCAR
- The ECE Graduate Affairs Office will refer to this information when attempting to contact students.
- ECE recognizes that personnel information is confidential and under no circumstances will this information be shared with outside parties.
- Written permission must be given before personal information is released to anyone outside of ECE.

### Cross-Listed Courses

- The term "cross-listed courses" is used in two different ways in the School of Electrical and Computer Engineering.
- The first use of "cross-listed courses" has an Institute-wide connotation and refers to classes that are offered with the same number and same course content in more than one discipline. (For example: ECE 6789 is also listed as BMED 6789, CHE 6789, ME 6789 and MGT 6789.)
- These classes generally have course numbers beginning with "67," but not all "67xx" courses are cross-listed.
- The Georgia Tech General Catalog indicates which "67xx" courses are cross-listed and the disciplines with which they are cross-listed.
- Students planning to use Institute cross-listed courses toward their degree should have approval from the ECE Graduate Affairs Office before registering for the classes.

- It is important to know how the cross-listed course will be used in the students program of study.
- Classes that are cross-listed with ECE cannot be used toward the minor requirement for either the PhD or MS degree.
- Some ECE courses are cross-listed between two ECE technical interest areas.
- Students using these classes toward the degree program must be especially careful not to overlook the cross listing when planning the programs of study.
- As indicated earlier, two of the courses in the MS Group II area and all three of the classes in the PhD Group II area must be outside and not cross listed with the technical interest area(s) in Group I for each degree.

The ECE cross-listed courses are as follows:

| Course # | Course Name  | TIA 1   | TIA 2 | GT Cross Listing                    |
|----------|--|---------|-------|-------------------------------------|
| 6276     | DSP Hardware System Designs                              | DSP     | CmpE  | None                                |
| 6277     | DSP Software Systems Design                              | DSP     | CmpE  | None                                |
| 6390     | Satellite Communications & Navigation Systems            | Telecom | Emag  | None                                |
| 6444     | Silicon-Based Heterostructure Devices and Circuits       | EDA     | Micro | None                                |
| 6542     | Optoelectronics: Devices, Integration, Packaging, System | Opt     | Micro | None                                |
| 6771     | Optoelectronics: Materials, Processes, Devices           | Opt     | Micro | Physics                             |
| 6780     | Medical Image Processing                                 | Bio     | DSP   | Computer Science and Biomedical Eng |
| 6786     | Medical Image Systems                                    | Bio     | DSP   | Biomedical Eng                      |

### Direct Deposit

Georgia Institute of Technology requires that all employees (including student employees) arrange to have their salary/stipend payment directly deposited with the financial institution of their choice.

Arrangement for direct deposit of the GRA or GTA stipend can be made at the time one completes the GT hiring paperwork with the Office of Student Employment

Non-employments related payments such as tuition refunds, fellowship payments, etc. are made to students through the Bursar's Office.

The Bursar's Office also offers a direct deposit option to students who may receive tuition refunds, fellowship payments, etc. through their office.

Information on arranging direct deposit of funds handled through the Bursar's Office can be found at :

<http://www.bursar.gatech.edu/>

## ECE on the Web

- The World Wide Web pages (<http://www.ece.gatech.edu>) for the School of Electrical and Computer Engineering contain significant information for student reference.
- In addition to faculty home pages that provide a source of research interest information, course outlines for ECE courses, degree requirement information, deadlines and important dates, forms, and other relevant degree program materials are recorded at the web site.
- All graduate students who are employed as Graduate Research or Teaching Assistants and all graduate students attending Georgia Tech on F1 or J1 visas are required to obtain health insurance through a University System of Georgia negotiated health plan. Information on the program can be found on the Student Health Center website.

## Mail Service

- Due to limited resources and a large student population, ECE does not provide departmental mailboxes for students.
- Students who reside in campus housing will be assigned campus post office mailboxes.
- Students living off campus may apply for campus post office boxes. There is a fee for this service. More information about campus mail services is available at <http://www.studentcenter.gatech.edu/postoffice>.
- Graduate students must make arrangements to have their mail sent to their local addresses or to their mailbox at the campus post office.
- Mail and/or packages sent to the School of Electrical and Computer Engineering for graduate students should be sent in care of the students' research advisors.
  
- Mailboxes assigned to specific classes are provided in the ECE mail/copier room (W203, Van Leer.)
- These boxes are for use by graduate teaching assistants (GTAs) with responsibilities for the classes designated.
- It is each GTA's responsibility to check the mailbox for their assigned class(es) on a daily basis and to be sure that all materials are removed from the mailbox at the end of the term so that assignments for the next term can be made.

## Program Planning

- All graduate students (M.S. and Ph.D.) in Electrical and Computer Engineering are required to file a coursework plan with the Graduate Affairs Office no later than "Drop Day" of the term in which they first enroll.
- The coursework plan serves as an indication that each ECE student understands the requirements of the degree they plan to pursue.
- Coursework planning forms, Georgia Institute of Technology catalog, ECE Graduate Student Handbook, and course listings on the ECE website should be used to plan the program of study.
- Once a viable coursework plan is determined, the student files the plan for approval through a secure website: <https://secure2.ece.gatech.edu/PHP/gradforms/index.html>.
  
- Ph.D. students who have completed a Master's degree and plan to use courses from that degree toward their Ph.D. should include those courses on their planning form.

- Course number and name as it is listed on the Master's transcript should be listed on the planning form along with the semester-equivalent hours and actual grade earned.
- Whenever possible to determine, the appropriate technical area for each course should be included as well.
- Master's students who plan to transfer Electrical and/or Computer Engineering classes toward their M.S. degree should also include them on the planning form, including course name, number, technical area, hours and grade earned.
- A request to transfer classes and transfer materials will also have to be submitted to the ECE Graduate Affairs Office.
- Master's students wishing to transfer hours in areas other than Electrical or Computer Engineering (e.g. Math, Computer Science) should contact those units directly to arrange for transfer credit.
- Revisions to the coursework planning form should be submitted whenever a significant change is made in the student's study program.
- Significant changes include (but are not limited to) change of one or both areas of specialization to a completely different one, or a change of minor area.

### Proper Registration

Students who use the facilities and/or the services of Georgia Tech's personnel (faculty, staff) in a term, must be registered. Only students who have been approved for enrollment waivers in their graduating term or who are taking a term off from school are able to not be enrolled in a term.

- Full-time enrollment for graduate students is defined as a minimum of 12 hours on a letter grade and/or pass fail basis. This status applies to the following groups of students:
  - International students (on F1 or J1 visas)
  - Students supported on fellowships, scholarships, and/or other sponsorships that require full-time enrollment to be eligible to receive funds
  - Students supported with Graduate Research or Teaching Assistantships
- Students who are on-campus in summer term and meet one or more of the criteria above are expected to be registered on a full-time basis during that term as well.
- Students on campus in summer who are required to be full-time and do not have a GRA or GTA will have to register for 12 hours of classes in order to fulfill the full-time requirement
- International students (on F1 or J1 visas) may take summer term as a vacation term and may be permitted to register on a part-time basis in summer without jeopardizing their visa status
- Students on GRAs or GTAs must be careful to meet full-time registration requirements during each term in which they are supported with an assistantship.
- Detailed information regarding full-time enrollment requirements for GRAs and GTAs is provided in the ECE graduate assistantship handbook which is provided to all GRAs and GTAs at the time their assistantship offer is made.
- Failure to register properly can result in cancellation of class schedules, loss of the GRA/GTA tuition waiver.

- If additional registration information is needed, the ECE Graduate Affairs Office should be contacted for guidance.

### Research Hours

- Students undertaking research must register for research hours to document their activities on their GT transcript.
- Students who are researching under the supervision of an ECE faculty member and are not pursuing the MS thesis option degree or have not passed the PhD Preliminary Examination may register for the section of ECE 8900 assigned to their research advisor.
- ECE 8900 hours are graded on a pass/fail basis and cannot be used toward degree requirements.
- Doctoral degree students who have passed the Ph.D. Preliminary Exam, have selected a research advisor, and have submitted a completed PhD Research Advisor Selection form to the ECE Graduate Affairs Office should register for Ph.D. dissertation hours (ECE 9000) under the supervision of their advisor.
- Master's degree students who are undertaking the "Thesis Option" should register for MS thesis hours (ECE 7000). MS thesis option students must also provide a completed MS Thesis Advisor Selection form to the ECE Graduate Affairs Office before registering for ECE 7000 hours.

### Special Problems Hours

- Special Problem courses are an excellent way to get to know faculty members and to become involved in research that is going on at Georgia Tech.
- Master's students may include up to a total of six special problem credits in their graduate program as free elective hours.
- PhD students, with proper documentation approved by the Associate Chair for Graduate Affairs, may use up to six hours of special problem credits as free elective hours in their graduate programs.
- The special problem course numbers are EE 8901, 8902, and 8903.
- A registration permit is required to be able to register for special problem hours.
- The last digit in the course number refers to the number of credit hours awarded for the Special Problem; i.e. 8901 = 1 credit, 8902 = 2 credits, and 8903 = 3 credits.
- Students wishing to undertake a special problem meet with a faculty member and define a research problem to be undertaken.
- After the problem is defined a special problem form is prepared and signed by the student and faculty advisor.
- The special problem form can be found in the Graduate Forms and Files area of the ECE website.
- Paper versions of the special problem form can also be found in the ECE Academic Affairs office.
- A one-page proposal of the problem is included with the special problem form.
- The proposal should state the problem, study method to be applied, and expected results.

- The completed paperwork is submitted to the Graduate Affairs Office for approval. Once approved, a registration permit will be issued for the particular faculty member's section, following which the student must register for the class.

### Transfer Credits

- Six semester hours of credit from another graduate school in the United States may be transferred toward the ECE MS or MSECE degree.
- Students who are enrolled at Georgia Tech may not receive credit for courses completed at another institution during the same academic term, unless prior permission has been obtained for cross enrollment or concurrent registration.
- A completed Request to Transfer Classes form, transcript showing completion of the class(es), and a syllabus and other descriptive materials must be submitted to the Associate Chair for Graduate Affairs for use in arranging transfer credit.
- A letter from the registrar of the institution where the classes were taken must be provided.
- This letter certifies that the classes to be transferred were not used toward any degree at that school.
- There is no formal transfer of MS hours to be used toward the Ph.D. degree.
- Students who have completed an MS degree in Electrical and/or Computer Engineering make an agreement with ECE to apply the MS hours toward the Ph.D.
- The PhD coursework plan is filed by the student to establish this agreement. The coursework plan should include all classes to be used toward the Ph.D. --both those to be completed at Georgia Tech and those from the MS awarding school.
- Courses from schools other than Georgia Tech should list the course number, name, and grade as listed by the awarding school. Do not enter what you consider to be the Georgia Tech equivalent of the course. The number of hours for the course is also listed.
- A copy of the transcript from the MS school should be submitted to the ECE Graduate Affairs Office when the coursework plan is filed.
- Approval of the coursework plan by the ECE Graduate Affairs Office serves as an agreement to use classes completed elsewhere toward the PhD coursework requirement.

### Variable Hour Classes

- ECE 8900, 7000, and 9000 are variable hour classes which represent general graduate level research, MS thesis, PhD dissertation research, and teaching or research efforts undertaken by graduate students.
- Registering for these hours provides documentation of a student's research efforts on the GT transcript.
- Prior to graduation, the Registrar's Office certifies that MS thesis option students have completed a minimum of 12 hours of ECE 7000.
- PhD students must have a minimum of 15 hours of ECE 9000 on their transcript to graduate, as well.
- PhD dissertation hours (ECE 9000) cannot be used in place of MS thesis hours (ECE 7000).
- When a variable hour class is first added to the schedule, it will be listed as having a value of only one hour.
- It is necessary to change class option on OSCAR in order to show more than one hour of effort.

## INFORMATION FOR ECE UNDERGRADUATES

### Permission to take Graduate Level Classes

- The School urges qualified Georgia Tech undergraduates to attend graduate school, since the Master's degree is increasingly regarded as the starting point of a professional career.
- The School provides two ways for a qualified undergraduate to get a head start on the Georgia Tech graduate degree requirements:

### The BS-MS Program

- This program is open to ECE undergraduates with outstanding academic records.
- The BS-MS program permits early admission into the MS program and dual credit for six hours of graduate courses (6000-level courses) taken as an undergraduate.
- Students interested in entering the BS-MS program submit a streamlined version of the graduate school application during the term in which they complete ECE 3040 or by Drop Day of the term immediately following completion of ECE 3040.
- Students interested in applying for the BS-MS program will submit a graduate school application and a brief Statement of Purpose addressing interests and ambitions, how a graduate level degree will support these plans and offering a brief recap of academic and personal accomplishments that support their interest in graduate level work.
- One letter of recommendation from an ECE faculty member is also required. Additional recommendation letters are also accepted.
- The GRE and application fee requirements are waived for students admitted through the BS-MS program.
- Students applying for the BS-MS program must have a minimum Georgia Institute of Technology grade point average (GPA) of 3.5 at the time of application.
- Once admitted, BS-MS students are expected to maintain a strong grade point average through the remainder of their undergraduate program.
- The final undergraduate GPA is expected to be 3.40 or higher.
- Students admitted into the BS-MS program cannot have an undergraduate term GPA lower than 3.0.
- Students admitted into the BS-MS program may use up to six credit hours of graduate level electrical and/or computer engineering coursework for both degrees.
- In order to double count hours toward both the BS and MS, the Master's degree must be completed within a two-year period from the award date of the Bachelor's degree.
- **Students wishing to apply for the BS-MS program should first review the BS-MS materials on ECE's website: <http://www.ece.gatech.edu/students/undergrad/bsms.html>.**
- **Questions regarding the BS-MS application process should be directed to the ECE Graduate Affairs Office.**
- **Graduate advisors may be contacted via email at <http://www.ece.gatech.edu/academics/graduate/contact.html> or during office hours.**

- **Requests for permits to register for graduate level classes to be taken while classified as an undergraduate student are filed through the “Overload/Permit” area of the ECE website.**
- **Undergraduates should consult with an undergraduate academic advisor for guidance regarding the use of graduate level classes toward the BSEE or BSCmpE degree.**

### Classes Completed as a GT Undergraduate

- Students who are not interested in or eligible for the BS-MS program may be able to apply classes completed as an undergraduate toward the master’s degree.
- Under this option, students take hours in excess of those required for the undergraduate degree, at either the graduate or senior level.
- An undergraduate wishing to take graduate level courses using this option must be classified as a senior, have a minimum GPA of 3.25 and receive an on-line permit before registering for the course.
- The excess hours so accumulated are considered for use toward the graduate degree by listing them along with the other classes to be used toward the graduate degree on the ECE Coursework Planning Form.
- These classes are distinguished from those to be taken as a graduate student by recording a grade notation of " UG" and noting the term and year in which each class was completed.
- The use of hours from undergraduate studies is also subject to approval by the Registrar’s Office. This is done when MS the degree petition is submitted.
- Up to nine hours completed as an undergraduate may be used for the Master's degree.
- Students with a GPA of 3.50 or above are able to count six of these nine hours toward both the BS and MS degrees, provided the classes meet requirements for both degrees.
- In order to double count class toward both the BS and the MS, the MS degree requirements must be completed and the MS degree awarded within two years of the BS degree.

**IMPORTANT NOTE:** Undergraduate students are not to delay completion of the bachelor's degree by taking classes intended to be used toward a future graduate degree.

- Undergraduate ECE students (including those admitted to the BS-MS program) wishing to register for graduate level classes must obtain permission through the ECE Graduate Affairs Office.
- Actual registration for the graduate classes is handled through the Office of the Registrar once permission has been granted.
- To request permission to take graduate level classes, follow the steps below:
- Go to the ECE website (<http://www.ece.gatech.edu>) and select "ACADEMICS" from the main menu.
- Click "Student Resources" from the menu on the left, then select "Overload/Permit Request System" from the “Student Resources” menu.
- From the screen labeled "Select the level of class for which you are seeking an overload or permit," select "GRADUATE (ECE 6000-9999)."
- Read the information on the next screen and click Continue when ready to move forward.
- Enter your GTID (9 digits, starts with 9) and select Undergraduate Seeking a Permit for a Graduate (6000 9XXX) Level Course, click Submit at the bottom of the screen.

- Your personal information and the type of permit desired will appear on the screen. Click Yes to move on or make corrections as needed so you can move on.
- Provide all of the requested information on the next screen and click on Submit Request.
- Your request will be forwarded to our office. You will be notified by email of our decision regarding your request.

### PhD Preliminary Examination

- Undergraduate students who have a GPA of 3.5 or higher, and who plan to apply for admission into the ECE Graduate Program, are allowed and encouraged to take the **Ph.D. Preliminary Examination**.
- The prelim exam is offered twice each year: during the midterm break in fall (October) semester and on the first Saturday of March for spring semester.
- Registration forms for the prelim exam are on the ECE website and are due by September 15 for the fall exam, January 15 for the spring one.
- A preliminary exam study guide and samples of past exams are available on the ECE website.
- For additional information regarding this examination, contact the ECE Graduate Affairs Office at <http://www.ece.gatech.edu/academics/graduate/contact.html>.

## INFORMATION FOR NON-ECE GRADUATE STUDENTS

### Registration Permits for Graduate (6000-9999) Level Classes

- All ECE graduate level classes are restricted to ECE majors through the first day of classes in each term.
- Non-ECE majors are considered for registration permits after the first day of classes.
- Non-ECE majors seeking permission to register for ECE graduate level courses must submit requests for registration permits through the ECE website: <http://www.ece.gatech.edu> by doing the following:
  - **Select "Academics" from the home page.**
  - **Select "Overload/Permit Request System" from the "Related Links" column on the left and read the directions.**
  - **Next click on the button marked "Graduate (ECE 6000-9999)" to file a request for permission to take an ECE graduate level class.**
  - **File your request making sure to select the permit option: Non-ECE Graduate student requesting a Permit for an ECE Graduate (6000-9XXX) level course.**
  - **Provide the requested information and submit the request.**

Decisions to award permits will be made after the first day of classes (i.e. during the final phase of registration for the term). Email notification of our decision will be sent to all who request permits.

### Registration Permits for Undergraduate (1000-4999) Level Classes

- Non-ECE students needing prerequisite over-rides or other permission to take ECE undergraduate courses should follow the instructions above.
- To make a request for a registration permit for an undergraduate class, click on the "Undergraduate (1000-4999)" button.
- Follow the directions to complete and file the permit request.

### Permission for Non-Majors to Seek an ECE Degree

- Students in other Georgia Institute of Technology graduate programs may request permission to pursue an MS degree in ECE as part of their studies at Georgia Tech. They may also ask permission to change their major school to ECE to pursue either the MS or PhD degree. In order to be considered for either of these options the following must occur:
- Students wishing to be considered for a change of major and non-ECE students who intend to pursue an ECE MS degree while attending the Georgia Institute of Technology must make their intentions known to ECE's Graduate Affairs Office before completing **no more than three** ECE courses at Georgia Tech. This is done by filing the following materials with the ECE Graduate Affairs Office:

### Letter of Intent

- With this letter, the student requests permission to pursue an ECE MS degree and includes a statement of purpose outlining the reasons for pursuing the ECE MS – i.e. describes how the ECE MS degree fulfills the student's academic, research, and career goals.
- The Letter of Intent must be endorsed by the Graduate Coordinator of the major school.

### Recommendation Letters

- Students seeking permission to obtain an ECE MS while remaining in their major school may use copies of the recommendations provided in the initial application packet, provided the major school will release copies of the letters.
- Students seeking to change their major to ECE or who cannot obtain copies of the recommendations submitted with the initial application packet must provide the following:
  - Seeking permission to obtain the ECE MS degree
    - A recommendation from the student's advisor addressing the ways in which the ECE MS degree supports the student's studies in the major school.
    - A recommendation from another faculty member in the student's major school
- Students seeking permission to change their major school to ECE must provide a recommendation from the student's current advisor as well as a recommendation from an ECE faculty member who supports their request and will serve as an advisor in ECE. A third letter from a faculty member in the student's home school or ECE is also required.
- Additional recommendations in support of the student's plans may be required.

### Academic File Copy

- Non-ECE students must request that a copy of their graduate file be sent to ECE by their major school. For full consideration, copies of the following materials should be provided to our office:
  - Action Sheet with GPAs determined by GT's admission office
  - Graduate school application
  - TOEFL and GRE scores
  - Transcripts from undergrad and (where applicable) other graduate schools attended
  - Major school letters offering admission and, financial support.
  
  - Copies of the student's letters of recommendation (at the major school's discretion.
  - If the major school does not provide recommendations, it is the student's responsibility to provide three recommendations – see above.
- A current, official GT transcript—**web transcripts are not acceptable.**
- In addition to the items above, international students wishing to be considered for approval to change their academic major to ECE must provide an updated "Information from Non-Citizens" form with original, official proof of the funds available for their support in graduate school.
- Students whose intent is to change their major to ECE and pursue the PhD degree will be required to pass the ECE PhD Preliminary Examination before a decision on their application will be considered.

- When the items above are received, the ECE Graduate Committee will review the student's request. The student and the Graduate Coordinator of the student's major school will be notified of the committee's decision. If granted, permission to pursue the ECE M.S. would be given with the understanding that the student is also expected to make reasonable progress toward a graduate degree in the student's major school. The major school may impose other requirements before ECE courses can be taken.

Should permission to pursue an ECE degree be granted, the student will be required to provide the following as degree progress is made:

- **MS Coursework Planning Sheet:** listing the classes the student will take to fulfill the requirements for the MS degree in ECE.
- **Degree Petition:** It is ECE's policy that degree petitions be filed by **drop day of the term preceding** the expected graduation term. (In other words submit the petition materials in Fall Semester for Spring Semester graduation). Students petitioning for an ECE degree must download the "Graduate Petition for Degree" and other ECE-specific degree petition materials from the "Academics" area of the ECE website. They must also obtain a hard copy of the "Exit Survey" from the ECE Academic Affairs Office. All materials for the degree petition must be submitted for the petition to be processed.

Students who are given permission to change their major school will be advised as to the specific steps which must be completed before final permission to change major schools is given.

## THE FINAL WORD

### ECE Graduate Affairs

- If you are unable to find the information you seek, are unsure about specific requirements, need advise, or just need to talk to someone, contact the ECE Graduate Affairs Office:
- Seek information on ECE's website: [www.ece.gatech.edu](http://www.ece.gatech.edu)
  - Email for guidance at: <http://www.ece.gatech.edu/academics/graduate/contact.html>
  - Telephone 404-894-2983
  - Come by during office hours (9:30 a.m. to 12:00 p.m., 1:30 p.m. to 3:00 p.m.) or request an appointment

Refer to Georgia Institute of Technology administrative personnel and websites. For example:

### Registrar's Office

Seek information on their website (<http://www.registrar.gatech.edu>) or contact them at [comments@registrar.gatech.edu](mailto:comments@registrar.gatech.edu) for matters concerning:

- Registration, Graduation
- Enrollment Certification
- Institute Academic Policy

### Office of International Education

Seek information on their website ([www.oie.gatech.edu](http://www.oie.gatech.edu))

- Visa and Immigration Matters
- Optional Practical and/or Curricular Practical Training Matters

### Bursar's Office

Seek information on their website ([www.bursar.gatech.edu](http://www.bursar.gatech.edu))

- Student financial accounts, Fee Payments
- Refunds

### Office of Professional Practice

- Co-op Opportunities, Internships
- Link to P2D2 database

### GT Graduate Studies Office

Seek information on their website ([www.grad.gatech.edu](http://www.grad.gatech.edu))

- Thesis Deadlines, Thesis Submission Procedures and Forms

### Student Financial Assistance

Seek information on their website (<http://www.finaid.gatech.edu>)

- Loans
- Tuition Waivers
- Fellowships

### **DO NOT rely upon second-hand advice.**

Well intentioned faculty and fellow students may not be aware of current policy information and may unintentionally provide inaccurate information. Your degree is too important to rely on second hand information. Contact the ECE Graduate Affairs Office for any questions.