2015 – 2016
ECE
GRADUATE HANDBOOK

SCHOOL of ELECTRICAL and COMPUTER ENGINEERING
GEORGIA INSTITUTE of TECHNOLOGY

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The ECE Graduate Handbook can be accessed online at
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 know and understand 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 are expected to know and understand 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. Steve McLaughlin
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.

**IMPORTANT - 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 1,200 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 the Associate Chair for Graduate Affairs, Professor George Riley. Professor David Hertling, Emeritus Associate Chair for Graduate Affairs, works part time and assists with many of the responsibilities of the office. The staff in the office consists of Mr. Tristin Carmichael, Dr. Daniela Staiculescu, Ms. Tasha Torrence, and Ms. Jacqueline D. Trappier.

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 petitions and 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 preferred way to contact the ECE Graduate Affairs Office is through the “Contact Us” website at http://www.ece.gatech.edu/academics/graduate/contact.html. Our fax number is 404-894-3047 and the office number is 404-894-2983.

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 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 4:30 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 through the “Contact Us” website at "http://www.ece.gatech.edu/academics/graduate/contact.html."
- Students wishing to meet with the Associate Chair for Graduate Affairs must make 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.
- Suggesting dates and times when you could be available for a meeting could speed up the process.

New Students

- New, on-campus ECE graduate students are required to attend an orientation program prior to the start of classes.
- Online Master’s Degree students residing in the Atlanta are welcome to attend this program as well.
- Students admitted into the Georgia Tech – Lorraine (GTL) program or Georgia Tech - Shanghai participate in an advisement program on their campus.

Continuing Students

- Advisement sessions for continuing students are provided prior to the first phase of registration each term. Advisors are available during the hours listed above for any students needing assistance.

Web-based Materials

- The ECE website (www.ece.gatech.edu) serves as a means by which students may obtain information about graduate degree requirements, policies and procedures.
- Degree program information, frequently used forms, handbooks, preliminary examination materials are all available on the Student Resources page of the ECE 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. The list 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 OIT website https://lists.gatech.edu/sympa provides access to the “GT Mailing List Services” site where a variety of subscription-based lists may be accessed. This is the web interface for Georgia Tech's mailing list server, lists.gatech.edu. Using this website, you can subscribe to lists, unsubscribe, manage lists you own, review archives, etc. (The availability of these actions for a particular list will depend on that list's configuration.)

If you are a Georgia Tech student, faculty, or staff member, you can log in using your GT Account username and password. This will allow you to manage lists attached to your published e-mail address.

Email messages sent through the news grads list at https://lists.gatech.edu/sympa are non-academic ones that announce such activities as career fairs, upcoming conferences, employment opportunities, etc. Students wishing to subscribe (or unsubscribe) to/from the news_grads@ece.gatech.edu list do so through the OIT website: https://lists.gatech.edu/sympa. Your GT email address should be used when subscribing to 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 through our website at: http://www.ece.gatech.edu/academics/internal/graduate/phd-degree.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 Advisors

- MS thesis option students should select a research advisor during their first term and no later than the end of registration for their second term in residence.
- The ECE Graduate Affairs Office is informed of the advisor selection by the 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/internal/graduate/ms-thesis.html).
- Only after the submission of the form can the student register for ECE 7000 (MS Thesis Research) under the selected advisor.

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 urged to meet with the Associate Chair for Graduate Affairs for guidance before making a change. It is important that all involved (student, current advisor and new advisor) are aware of the situation and that a mutually acceptable resolution results 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 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 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 be sent to comments@registrar.gatech.edu or filed through the registrar’s “Contact Us” site at: http://www.registrar.gatech.edu/contact.php.
- Additional registration assistance and/or information may be found at 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 through the 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 Monday 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 final 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).**
- Students may change the grade basis of classes listed with multiple grade options (e.g. letter grade, pass/fail, and audit). Changes from letter grade to audit can be made through the close of registration in each term. Changes from letter grade to pass/fail may be made through drop day of the term. However, ECE classes are generally offered with a single grade basis, so this option may not be available for ECE classes. Please check degree requirements before changing to an audit or pass/fail basis for a course.
- There is **no way** to add classes after registration for the term closes at 4:00 p.m. on Friday of the first week of school.
- 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 on Oscar [https://oscar.gatech.edu](https://oscar.gatech.edu)

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 that 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 – Shanghai, the Torino (Italy)/Atlantis program and the Online Master’s Degree.
• 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 message must request a permit or change of campus.
• To request a registration permit or a change of campus to the one at which the desired classes are offered, send an email through our “Contact Us” website at: [http://www.ece.gatech.edu/academics/graduate/contact.html](http://www.ece.gatech.edu/academics/graduate/contact.html) and are handled through the ECE Graduate Affairs Office.
• Non-Online Master’s 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 until 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 8999 (Search for a Research Topic and/or Advisor) and ECE 8022 (Professional Communications Seminar) are 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 every 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 Register 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 few days of classes and throughout 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 of their willingness to 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 course 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 PRE-REQUISITE” error message.
  - Permits for ECE undergraduate classes are handled by the undergraduate advisors in the ECE Academic Affairs Office.
  - Graduate students seeking to enroll in undergraduate classes with prerequisites must 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 academic 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 must contact us via email through the “Contact Us” site [http://www.ece.gatech.edu/academics/graduate/contact.html](http://www.ece.gatech.edu/academics/graduate/contact.html) or by coming to the ECE Graduate Affairs Office during regular office hours.

**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, at least 9 of which must be 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 working on research, studying for the preliminary exam, or looking for PhD advisors or research topics should register for 21 hours in the Fall/Spring and 16 hours in the summer.
  - PhD students who have passed the preliminary exam and selected a research advisor should register for ECE 9000.
  - MS thesis students can register for ECE 7000.
  - Students who are working on research but are not eligible to register for thesis hours should sign up for ECE 8900 under the professor who is directing their research.
  - Students studying for the preliminary exam should register for ECE 7999.
  - Students who are searching for a research advisor or research topic should register for ECE 8999, which is a permit-restricted class. For more details on ECE 8999 restrictions see “Variable Credit Hour Courses”.
Students who are GTAs should register for ECE 8997 and GRAs for ECE 8998.

**WARNING:**

- Students who have received a tuition waiver have to be enrolled full time. **Full time status has to be maintained after dropping classes with a W grade.** Students who are not enrolled full time or who lose the full time status after dropping classes will lose their tuition waiver and will be charged full tuition (around $14,000 for out of state students). Additionally, international students who lose full time status will fall out of compliance with their visa status and will be required to leave the country until their status is cleared.

- Summer Term: All of the above requirements are in place during the Summer semester, as summer is considered a standard term for Georgia Tech. 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.
  - 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. Visa requirements are independent of GTA/GRA requirements.
  - If students plan to be away from campus for a large part of the summer and, therefore, are not eligible to register as a full time student cannot hold GRA/GTA positions. They might be eligible to be hired as an hourly employee. Note that hourly employees are very limited in the number of hours that they are allowed to work.

**Change Course Grade Basis**

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 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. 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. The audit marker classes are the ones that document employment as a graduate research or teaching assistantship (ECE 8998 and 8997) and the preparation for the ECE preliminary examination (ECE 7999).
GRADES AND SCHOLASTIC REQUIREMENTS

The information in this section is a synopsis of general graduate school requirements, especially those policies for which there are special ECE 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 available at http://www.catalog.gatech.edu. The Student Rules and Regulations (http://www.catalog.gatech.edu/genregulations/nav.php) section of the catalog is especially useful for students.

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:
  o 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.
  o 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.

ECE students whose overall and/or term grade point average is below that required by the Institute will be contacted by the Associate Chair for Graduate Affairs to discuss their progress and plans for improving their academic performance.

Withdrawal from Classes

Withdrawing from (or dropping) a course is a serious decision. 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. **Students who must have full time status must make sure that they will retain that full time status after the withdrawal.**

• The exact date of the deadline for withdrawal from classes is posted in the Official School Calendar ([http://www.registrar.gatech.edu](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. Prior to dropping a class, all students are encouraged to check with an Academic Advisor if their full time status and/or degree progress will be affected by dropping the class. If you are not sure, **ALWAYS ask an Academic Advisor!** You can send your inquiry online at [http://www.ece.gatech.edu/academics/graduate/contact.html](http://www.ece.gatech.edu/academics/graduate/contact.html) or visit the Academic Office.
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 no later than 3:00 p.m. on the preceding 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 (available on the registrar’s website) requesting a waiver of this requirement may be filed.
- If the student is not registered in two consecutive terms (including the one in which the withdrawal occurred), an application for readmission must be filed. A $25 fee is charged when submitting an “Application for Readmission.”
- 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:
  o Academic/Professional activities undertaken while absent from Georgia Tech
  o Plans for degree completion (including degree sought, part-time or full-time, expected time to degree completion)
  o Financial needs
  o Advisor status
  o International students will have to provide an updated Information from Non-Citizens form and original, official documentation of funds as well.
  o Recommendations from faculty may also be sought before a decision is made on readmission applications.
  o Students who have been “academically dismissed” will have to file readmission agreements in addition to the readmission application.
  o Students who have poor academic records or who have not made good progress in completing degree requirements may not be recommended for readmission.
GRADUATE LEVEL COURSE STRUCTURE

ECE's graduate level courses are grouped among 11 Technical Interest Areas (TIAs), listed below. For a list of the current classes under each TIA, check the projected class schedule on the ECE website at http://www.ece.gatech.edu/academics/graduate/course_schedule.pdf.

Bioengineering (BioE)

Computer Systems & Software (CSS)

Digital Signal Processing (DSP)

Electrical Energy (EE)

Electromagnetics (Emag)

Electronic Design & Applications (EDA)

Microelectronics (Micr)

Modern Optics (Opt)

Systems & Controls (S&C)

Telecommunications (Comm)

VLSI Systems & Software (VSS)

Cross-Listed Courses
The term "cross-listed courses" is used in two different ways in the School of Electrical and Computer Engineering.

- 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 since there are limitations on how cross-listed courses can be used to satisfy degree requirements. The cross-listed courses are indicated in the TIA Course listings of this handbook. For details on degree requirements for the MS and for the PhD, consult those sections of this handbook.

- The other 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.
  - Classes that are cross-listed with ECE cannot be used toward the minor requirement for either the PhD or MS degree.

Examples ECE courses cross-listed with other disciplines are as follows. To confirm that a specific class is cross-listed, check the current term on Oscar.
<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Name</th>
<th>TIA(s)</th>
<th>GT Cross Listing</th>
</tr>
</thead>
<tbody>
<tr>
<td>6771</td>
<td>Optoelectronics: Materials, Processes, Devices</td>
<td>Opt/Micro</td>
<td>Physics</td>
</tr>
<tr>
<td>6780</td>
<td>Medical Image Processing</td>
<td>Bio/DSP</td>
<td>Computer Science and Biomedical Eng</td>
</tr>
<tr>
<td>6767</td>
<td>Quantitative Electrophysiology</td>
<td>Bio</td>
<td>Biomedical Eng and Physics</td>
</tr>
</tbody>
</table>

**GTA/GRA Marker Courses:**
- GRAs must sign up for ECE 8998, which is a course that shows up on a transcript indicating the GRA status.
- GTAs must sign up for ECE 8997, which is a course that shows up on a transcript indicating the GTA status.
- In addition, all GTA/GRAs must be registered full time.

**Variable Credit Hour Courses:**
There are several variable credit hour courses. The default is usually 1 credit hour when students try to register for the courses, so students must change the number of credits when they register. Many of these courses allow up to 21 hours, and we ask all students who are plan to take these courses to sign up for the maximum load, which is 21 hours in Fall/Spring and 16 hours in Summer.
- Research Hours: Students undertaking research must register for research hours to document their activities on their GT transcript, and should register for 21 hours in the Fall/Spring and 16 hours in the Summer.
  - ECE 9000 PhD Thesis (P/F): 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 advisors.
  - ECE 7000 MS Thesis (P/F): 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.
  - ECE 8900 Special Problems (P/F): Students who do research 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. This course is pass/fail and does not count towards degree credit. It should not be confused with ECE 8901, ECE8902, and ECE8903, also called “Special Problems”, which are letter grade courses.
- ECE 8999 PhD Dissertation Preparation (P/F): For students who are seeking an advisor or a research topic. This class is permit only and can be taken for a maximum of 9 credit hours. It is limited to one semester for MS students who seek a MS Thesis advisor and to two semesters for new PhD students.
- ECE 7999 PhD Qualifier Preparation (Audit): For students who are studying for the preliminary exam. Up to 6 credits recommended, only the semester that the student is taking the exam. ECE 7999 cannot be taken in the Summer term.
**Special Problems Hours**

Special Problem hours, ECE 8901, ECE 8902, ECE 8903 and CS 8903 are independent study courses under the direction of a faculty supervisor. 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. Please note that students may not count Special Problems course credit towards their degree if they simultaneously were paid for doing the work (as a GRA or as a Graduate Assistant) or if they were registered for thesis hours to do the same work.

- Master’s students may include up to a total of six special problem credits in their graduate program as free elective hours.
- PhD students, under specific circumstances and with approval 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.
- 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 ECE Special Problem; i.e. 8901 = 1 credit, 8902 = 2 credits, and 8903 = 3 credits.
- As of Spring 2014, CS special problem hours can also be used towards the elective course requirements, both for MS and PhD students. CS 8903 is a variable hour course that has to be taken for letter grade. ECE accepts CS 8903 only for 1, 2 or 3 credit hours.
- Students wishing to undertake a special problem should
  - 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 forms are found as follows:
    - ECE  [http://www.ece.gatech.edu/academics/internal/graduate/coursework.html](http://www.ece.gatech.edu/academics/internal/graduate/coursework.html).
    - CS  [http://www.cc.gatech.edu/current/masters/forms](http://www.cc.gatech.edu/current/masters/forms)
    - Paper versions of the special problem form can also be found in the ECE/CS Academic Affairs offices.
  - 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.

**Audit Hours**

- The GRA/GTA marker courses ECE 8998 and 8997 and the PhD Preliminary Exam Preparation marker course ECE 7999 are the only audit hours that ECE students should be using toward their full-time course loads.
- ECE classes are not offered on an audit basis, therefore, no ECE courses other than ECE 7999, 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 that school to inquire if this is possible.
- 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.
- Students who are studying for the PhD Preliminary exam may make arrangements with a course instructor to “sit in” on a course. Whatever criteria set by the course instructor for “sitting in” must be adhered to by the student.
Seminar Courses
Seminar courses are one credit hour pass/fail courses. Some of the following courses may be allowed to be used as free electives towards ECE graduate level courses (MS and PhD degree requirements differ): ECE 8001, ECE 8002, CS/CSE 800x, ECE 8022, ECE 6792, PHIL 6000.
PLEASE NOTE: Throughout Master of Science and PhD degree sections which follow in 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 that 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. The school offers two options: a thesis option and a non-thesis option. There are also two degrees offered: the designated MSECE and the undesignated MS degree. 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.**

MS and MSECE Degree Requirements

The following table summarizes the requirements for the Masters degree in the School of Electrical and Computer Engineering.

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

**Groups I and II – Selection of ECE 6000 Level or Higher Classes**

6000-level or higher ECE courses offered by specific TIA's can be used to satisfy these requirements, including Special Topics courses.

- Nine hours of 6000 level or higher coursework in one or two Technical Interest Areas (TIA's) are needed to fulfill the Group I requirement for non-thesis master’s candidates and six hours for the thesis master’s students.
In Group II, at least six hours of 6000 level or higher 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. Group II classes may be selected from one, two or three TIAs, provided degree requirements are met. ECE courses not designated to belong to a TIA cannot be used for Group II or Group II requirements.

To verify the technical interest area of a particular course, look at the course listings in the “Graduate Level Course Structure” Section of this manual or on the Graduate Website at http://www.ece.gatech.edu/academics/courses/course_menu.php.

To determine the TIA of a Special Topics course, students may examine the Projected Course Schedule available on the Graduate Website (under Student Resources) at http://www.ece.gatech.edu/academics/graduate/course_schedule.pdf.

Pass/Fail, audit, and Special Problems courses cannot be used to satisfy Group I and Group II requirements.

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.

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

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. 4000 level or higher classes may be taken subject to the following guidelines:

- Minors are expected to be in subject areas that enhance and relate to students’ ECE coursework. Students may choose math, CS, any non-ECE engineering, science, management, public policy, or economic fields. Other fields would need to be approved by the ECE Graduate Committee.

- MS Students planning to pursue the PhD should note that PhD minors are more restrictive than MS minors and should review that section of this manual. (For example, Management is allowed as an MS minor but not a PhD minor.)

- The lists of Math and CS courses pre-approved for the PhD degree are also approved for the MS degree. See the Appendix and the ECE Website under the PhD Requirements listing for the updated list.

- All minor courses must be taken for a grade.

- 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.

- Minor courses cannot be cross-listed with ECE classes.

- 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.
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 technical/engineering/math/CS, science 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.

- Special Problems courses, ECE8901, ECE8902, and ECE8903 (but not ECE8900), and CS 8903 can be used to satisfy General Elective requirements.

- Pass/fail hours may only be used in the Group IV (Electives) portion of the program, and no more than three hours of pass/fail coursework may be used toward the non-thesis M.S. degree. The only pass/fail courses that are acceptable elective hours are the ECE seminars (ECE 6792, 8001, 8002, 8022), CS/CSE seminars (CS/CSE 800x) or PHIL 6000 (Responsible Conduct of Research).

- 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.

Transfer Credits

- Up to six semester hours of graduate-level credit from another graduate school in the United States or an international partner school may be transferred toward the ECE MS or MSECE degree. The grades for classes to be transferred must be at the “B” level or higher.

- 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.

- The ECE Faculty will evaluate this material and make a decision. Not all classes completed elsewhere will be allowed to transfer. In cases where ECE has an equivalent undergraduate course, the course will not be allowed.

General Requirements

- A minimum grade of “C” is required in all classes used toward the master’s degree.

- A master’s degree student must have a minimum GPA 2.70 in order to graduate. Georgia Tech does not round GPAs, they truncate them. So a 2.67 is not sufficient to graduate.

- A cumulative grade point average of 2.70 must be maintained to remain in “Good” academic standing in the MS program.
• **No more than 9 hours of 4000 level courses** can be used toward a graduate level ECE degree.

• ECE 7999, 8900, 8997, 8998, 8999 and CETL pass/fail courses cannot be used to satisfy degree requirements

**Thesis Option**

• Students registered for MS thesis hours are expected to complete the MS thesis option degree. However, circumstances might arise that impede the completion of the thesis. The student is allowed to switch to non-thesis option if in agreement with the thesis advisor, but will not be able to count any of the thesis hours toward the non-thesis degree requirements.

• 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. The form has to be submitted together with a Thesis Summary of maximum 10 pages. The MS Thesis Topic Approval will be posted on the ECE website for faculty review and a copy of the Summary will be provided to ECE faculty who wants to learn more about the thesis.

• **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 Studies – VPR office and submission of the MS thesis to the reading committee for their final approval.**

• Detailed 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/academics/internal/graduate/ms-thesis.html](http://www.ece.gatech.edu/academics/internal/graduate/ms-thesis.html).

• Georgia Institute of Technology thesis preparation and submission guidelines are available at: [http://grad.gatech.edu/theses-dissertations](http://grad.gatech.edu/theses-dissertations).

• The links for all the above listed documents and forms, along with a checklist, are available at [http://www.grad.gatech.edu/theses-dissertations-forms](http://www.grad.gatech.edu/theses-dissertations-forms).

• 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/theses-dissertations-deadlines.
- 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!

**RCR Requirement for MS Thesis**

- Beginning Fall 2014, the Institute will implement the Responsible Conduct of Research (RCR) Academic Policy for Master’s Thesis Students. This policy requires MS students enrolled in 7000 thesis hours to complete the appropriate RCR training requirement before the Request for Approval of Master’s Thesis Topic Form can be processed. Students who submitted a Request for Approval of Master’s Thesis Topic Form prior to Fall 2014 will not be required to complete a new form.
  - **First Option** - Successfully complete the online CITI RCR course (rcr.gatech.edu/online-training/)
  - **OR**
  - **Second Option** - Successfully complete an in-person requirement - PHIL 6000 has been approved for ECE doctoral students and may also be used for MS Thesis students. ECE does not have its own in-house RCR course but will accept an academic program's in-house RCR training approach (Please see the PhD section of this handbook for approved courses).

- For more additional information pertaining to this new policy, please visit http://rcr.gatech.edu/masters-policy.

**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. The following recommendations indicate reasonable progress in the MS program:

**Non-thesis Option**

- A full-time Master’s student seeking the non-thesis MS or MSECE should 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 should 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.

**Change from MS to PhD**
Effective Spring 2014, all the students admitted as MS who want to switch to PhD will have to reapply to the ECE Academic Office in order to be admitted as PhD students alongside the other applicants to the PhD program.
MS students who wish to be admitted into the PhD program have to meet the following requirements:
- Pass the PhD Preliminary examination
- Find a research advisor
- Have a funding source
- Maintain a 3.5 graduate GPA

The following papers will have to be submitted to the Academic Office for approval prior to filling out a Change of Major form with the Registrar’s Office:
- Advisor selection form
  [http://www.ece.gatech.edu/academics/internal/graduate/forms/Select_Advisor.pdf](http://www.ece.gatech.edu/academics/internal/graduate/forms/Select_Advisor.pdf)
- Recommendation letter from the PhD advisor
- Proof of funding
- Statement of purpose form
  [http://www.ece.gatech.edu/academics/internal/graduate/forms/Change-from-MSECE-to-PhD-ECE.pdf](http://www.ece.gatech.edu/academics/internal/graduate/forms/Change-from-MSECE-to-PhD-ECE.pdf)

Additional requirements, to be verified in the Academic Office, are:
- Pass the preliminary examination
- Maintain a 3.5 minimum graduate GPA
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.

The PhD degree requirements include:

- 43 credit hours of coursework
- Responsible Conduct of Research training
- Passing the PhD Comprehensive Exam, including the Proposal Exam
- Conducting research, writing and successfully defending a PhD dissertation

Coursework

The following table summarizes the coursework requirements for the Ph.D. degree in the School of Electrical and Computer Engineering.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I: ECE 6000 level classes in one or two TIAs:</td>
<td>9</td>
<td>Nine hours of classes from one or two technical interest areas (TIAs) of the student’s choice. All for letter grade credit.</td>
</tr>
<tr>
<td>Group II: ECE 6000-level classes</td>
<td>9</td>
<td>Nine hours of classes, all of which must be from one or more TIAs that are outside of and not cross-listed with the TIA(s) in Group I. All for letter grade credit.</td>
</tr>
<tr>
<td>Group III Minor in an area outside ECE</td>
<td>9</td>
<td>Nine hours of classes in a single discipline outside of ECE. All for letter grade credit</td>
</tr>
<tr>
<td>Group IV: Electives</td>
<td>14</td>
<td>(Up to 12 MS thesis hours, recorded as such on an official transcript, may be used in this area)</td>
</tr>
<tr>
<td>ECE 8022 (Professional Communications Requirement)</td>
<td>1</td>
<td>Pass/fail. Permit required. Students have to pass the preliminary examination to receive a permit.</td>
</tr>
<tr>
<td>Responsible Conduct of Research (RCR)</td>
<td>1</td>
<td>Pass/fail. Students entering PhD program in Fall 2011 or later and MS students who were admitted for Fall 2011 or later and then transition</td>
</tr>
</tbody>
</table>
requirement to PhD must take an RCR course to fulfill this requirement. (PHIL 6000)

Total hours required 43

Groups I and II – Selection of ECE 6000 Level or Higher Classes

6000-level or higher ECE courses offered by specific TIAs can be used to satisfy these requirements, including Special Topics courses.


- Nine hours of 6000 level or higher 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, all nine hours of 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. Group II classes may be selected from one, two or three TIAs, provided degree requirements are met. Courses that do not belong to any TIA cannot be used to satisfy Group I or Group II requirements.

- Pass/Fail, audit, and Special Problems courses cannot be used to satisfy Group I and Group II requirements.

- To verify the technical interest area of a particular course, look at the course listings in the “Graduate Level Course Structure” Section of this manual or on the Graduate Website (under Student Resources, Courses and Syllabi link).

- To determine the TIA of a Special Topics course, students may examine the Projected Course Schedule available on the Graduate Website (under Student Resources) at http://www.ece.gatech.edu/academics/graduate/course_schedule.pdf

Group III (Minor): 9 Hours outside ECE as a Minor Field of Study

A minor consists of nine credit hours of courses in a single discipline (e.g. Math, Physics, Mechanical Engineering, etc.). 4000 level or higher classes may be taken subject to the following guidelines:

- Minors are expected to be in subject areas that enhance and relate to PhD students’ research. Students may choose math, CS, any non-ECE engineering, or science discipline. Other fields would need to be approved by the ECE Graduate Committee. Minor courses in non-technical areas (for example, Management) need special approval.

- **Minor courses cannot be cross-listed with ECE classes.**

- All minor courses must be taken for letter grade.

- 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.

- All minor course selections are approved as part of the coursework plan approval process. Math and CS have some additional requirements. Not all the 4000 level Math and not all CS classes are approved. A list of approved 4000 level Math and approved CS classes for the minor are
listed in the Appendix and on the ECE website (under the topic of PhD degree requirements). 6000 level Math courses are all approved.

- Students who entered the MS/PhD programs prior to Spring 2010 may use Math classes that are listed in previous editions of the ECE Graduate Handbook even if they are not included on the list above.

- 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 by the ECE Academic Affairs Office to the Georgia Tech Graduate Studies – VPR office for approval.

- Additional information about a course might be requested during the approval process, including information listed below as required for approval of Special Topics courses.

- The minor courses 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 and would not be accepted.

| 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. |

**Group IV General Elective Courses**

- General electives are to enhance the technical background of students. Non-technical classes should be pre-approved by the ECE Graduate Office.

- Up to 6 credit hours of ECE Special Problems (ECE 8901, 8902, 8903 and CS 8903) may be used as general elective courses, subject to approval by the ECE Graduate Office. **Faculty supervisors must certify that the work done for these courses is not simultaneously being done for pay (as in a GRA) or for other credit (as for ECE 9000, ECE 8900, or ECE 7000).** To receive approval for these courses to be counted towards the PhD degree, complete the approval form found on the Graduate Forms and Files website at [http://www.ece.gatech.edu/academics/graduate/internal/graduate/coursework.html](http://www.ece.gatech.edu/academics/graduate/internal/graduate/coursework.html). It is expected that these courses are rigorous and the level of work is commensurate with a 1, 2, or 3 credit graduate level course.

- Non-ECE Special Topics courses can be used for general electives.

- Pass/fail courses cannot be used in any other Group except for Group IV General Electives. The only pass/fail hours that can be used are ECE seminars (ECE 8001, 8002, 8022 or 6792), CS/CSE seminars (CS/CSE 800x), and the RCR requirement (PHIL 6000). No more than **four** pass/fail hours can be used towards the Group IV General Electives.

- Only 4000 level or higher courses can be used for degree requirements, but note that there is a total limit of 9 hours of 4000 level courses that can be used for the PhD degree.
• Students are welcome and encouraged to take additional elective courses to enhance their background. These courses would be for the student’s benefit and would not count towards degree requirements.

The Professional Communications Requirement
• All ECE PhD students are required to complete ECE 8022, a one-hour professional communications seminar, in order to fulfill the PhD coursework requirement.
• Permits are required for ECE 8022. Only students classified as “PhD” and who have passed the preliminary examination will be allowed to take ECE 8022.
• Students are encouraged and may be required by their research advisor or their proposal review committee to take additional communications courses offered by CETL or the Language Institute.

Responsible Conduct of Research (RCR) Requirement
Georgia Tech requires all PhD students who were admitted for Fall 2011 or later to complete an RCR requirement that consists of on-line training and an in-person training. MS students who were admitted for Fall 2011 or later and then transition to PhD students must also meet this requirement.

Additional graduate students may need to complete this requirement, depending on their source of funding. Students may refer to the applicability criteria listed in the Georgia Tech RCR Compliance Policy to determine if their source of funding requires RCR training (http://www.compliance.gatech.edu/forms/GT_RCR.pdf).

The On-line CITI Requirement: The online portion of the requirement, a CITI RCR course, must be successfully completed within 90 days of when applicable students begin the first full semester in their doctoral program. The CITI RCR course can be found here: https://www.citiprogram.org.

If a student goes past the 90 day time frame, a hold may be placed on course registration until the student completes the online training.

The In-Person Requirement: Students covered by this policy are required to successfully complete PHIL 6000 OR an academic program’s in-house RCR training approach. Students are strongly encouraged to complete in-person training within the first 12 months of their doctoral program. In general, applicable students will be expected to take PHIL 6000 during the first summer session after they begin their doctoral program at Georgia Tech. Additional sections will be available during the fall and spring semesters for those students who would not otherwise be enrolled during the summer session.

As of January 24, 2012, the following academic programs have an approved in-house RCR training approach for their doctoral students. ECE does not have its own in-house RCR course but would accept any of the following courses approved for other schools:
• Applied Physiology – PHIL 6010: Biotechnology and Research Ethics
• Biology – BIOL 8106: Tools of Science
• Chemical & Biomolecular Engineering – ChBE 6003: Chemical Process Safety and ChBE 8801: Introduction to Research (both courses are required)
• Chemistry – CHEM 8902: Information Resources for Chemists and Biochemists
Psychology – PSYC 8900: Special Problems in Experimental Psychology - RCR

These courses or PHIL 6000 can be counted in the Group IV General Elective category or approval may be requested to count one of these courses in the Group III Minor category. More information as well as an FAQ can be found at http://www.rcr.gatech.edu/resources.

Additional Restrictions and Conditions on Coursework

- Students with prior graduate work, including an MS degree from another institution may have up to 30 hours of courses applied towards the ECE PhD degree requirements, subject to approval. Details are given in the section entitled “Applying MS Coursework Completed at other Schools toward the PhD Coursework Requirement” in this handbook.

- No more than three senior (4000) level courses (9 semester hours) permitted to be used toward the PhD coursework requirement. 4000 level classes can only be used toward the elective (Group IV) or minor (Group III) areas of the PhD coursework requirements.

- No more than a total of four pass/fail hours can be used toward the PhD coursework requirement—this includes 8022 and PHIL 6000.

- 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 and must have at least a 3.0/4.0 to graduate.

- All classes used to fulfill the PhD coursework requirement must have grades of “C” or above.

- 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.

Filing a Coursework Plan

- All ECE PhD students are required to file a coursework plan no later than one month prior to submission of their proposal.

- 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 credit for the PhD degree, that is, classes taken elsewhere would not appear on the Georgia Tech transcript. However, MS coursework completed at other schools can 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.
  
  o To request approval of these courses, students should submit a transcript showing completion of the class(es), and a syllabus and other descriptive materials must be submitted to the ECE Graduate Office.
  
  o 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:
  
  o English version of the MS thesis
  o Documentation on the official transcript of completion of the MS with a thesis
  o Completion of MS thesis research hours on the MS school’s transcript

- 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.

Preliminary Examination

Students must pass the Preliminary Exam, which is a written exam on undergraduate material spanning all the topics of ECE plus some additional questions on CS and on bioengineering. Students must do 8 out of 22 questions on the exam. 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 who are studying for the PhD Preliminary Exam are encouraged to register for ECE 7999 for up to 6 credit hours. ECE 7999 should only be taken the semester when the student is registering to take the examination. **Do not register for ECE 7999 during the Summer term!**

- How many times students are allowed to take the exam:
o Students classified as PhD at the time of admission must pass the PhD Preliminary Examination within their first four semesters (not counting the summer) in the program. All PhD students are permitted three opportunities to take the exam while enrolled in the ECE graduate program at Georgia Tech.

o Students admitted into the graduate program as MS students and wish to become PhD students are allowed to take the preliminary examination while in the MS program.

- 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 registered for the exam and are unable to take it 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.

**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 22 problems from both ECE undergraduate core courses and elective courses. The problem distribution is as follows:
  - **CSS** provides 2 problems from the material covered in ECE 2035, ECE 2036, ECE 3020, and ECE 3056. The exact two courses for a specific term are announced prior to the exam.
  - **EDA** provides 1 problem from ECE 2040 and 1 problem from ECE 3400.
  - **EMAG** provides 1 problem from ECE 3025 and 1 problem from ECE 4350.
  - **Power** provides 1 problem from ECE 3072 and 1 problem from ECE 3300.
  - **Microsystems** provides 1 problem from ECE 3040 and 1 problem from the material in ECE 3450 and ECE 4752.
  - **BIO** provides 2 problems from the material covered in ECE 4781, ECE 4782, and ECE 4784.
  - **Systems and Controls** provides 2 problems from the material covered in ECE 3084 and ECE 3550.
  - **VLSI** provides 1 problem from ECE 2020, 1 problem from ECE 3030, and 1 problem from ECE 3150.
  - **Optics** provides 1 problem from ECE 4500 and 1 problem from ECE 4501.
  - **Telecom and DSP** provide 1 problem from ECE 2026, 1 problem from ECE 3077, and 1 problem from ECE 3600.
The relevant courses are listed below:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>Fund of Dig. Sys. Design</td>
<td>VLSI</td>
</tr>
<tr>
<td>2026</td>
<td>Into to Signal Processing</td>
<td>DSP</td>
</tr>
<tr>
<td>2035</td>
<td>Programming for HW/SW</td>
<td>CSS</td>
</tr>
<tr>
<td>2036</td>
<td>Eng Software design</td>
<td>CSS</td>
</tr>
<tr>
<td>2040</td>
<td>Circuit Analysis</td>
<td>EDA</td>
</tr>
<tr>
<td>3020</td>
<td>Mathematics for CE</td>
<td>CSS</td>
</tr>
<tr>
<td>3025</td>
<td>Emag</td>
<td>Emag</td>
</tr>
<tr>
<td>3030</td>
<td>Phys Foundations for CE</td>
<td>VLSI</td>
</tr>
<tr>
<td>3040</td>
<td>Microelectronic circuits</td>
<td>Microsystems</td>
</tr>
<tr>
<td>3056</td>
<td>Arch, Concur, Energy in Comp</td>
<td>CSS</td>
</tr>
<tr>
<td>3072</td>
<td>Energy Systems</td>
<td>Power</td>
</tr>
<tr>
<td>3077</td>
<td>Prob and Stat for ECE</td>
<td>DSP/Telecom</td>
</tr>
<tr>
<td>3084</td>
<td>Signals and Systems</td>
<td>Controls</td>
</tr>
</tbody>
</table>

**Breadth Courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>3400</td>
<td>Analog Electronics</td>
<td>EDA</td>
</tr>
<tr>
<td>3150</td>
<td>VLSI and Adv. Dig Design.</td>
<td>VLSI</td>
</tr>
<tr>
<td>3450</td>
<td>Semiconductor Devices</td>
<td>Microsystems</td>
</tr>
<tr>
<td>4350</td>
<td>Electromagnetic Applications</td>
<td>Emag</td>
</tr>
<tr>
<td>3300</td>
<td>Energy Conversion</td>
<td>Power</td>
</tr>
<tr>
<td>3600</td>
<td>Computer Communications</td>
<td>Telecom</td>
</tr>
<tr>
<td>3550</td>
<td>Feedback Control Systems</td>
<td>Controls</td>
</tr>
</tbody>
</table>

**Undergraduate Elective Courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>4500</td>
<td>Optical Engineering</td>
<td>Optics</td>
</tr>
<tr>
<td>4501</td>
<td>Fiber Optics</td>
<td>Optics</td>
</tr>
<tr>
<td>4752</td>
<td>Int Circuit Fabrication</td>
<td>Microsystems</td>
</tr>
<tr>
<td>4781</td>
<td>Biomed Instrumentation</td>
<td>Bio</td>
</tr>
<tr>
<td>4782</td>
<td>Biosystems Analysis</td>
<td>Bio</td>
</tr>
<tr>
<td>4784</td>
<td>Electrophysiology</td>
<td>Bio</td>
</tr>
</tbody>
</table>

- From the 22 problems of the overall examination, each student must select 8 to work and submit for grading. Students are given four hours to work the exam problems.
- A detailed list of the exam topics is listed in the ECE Preliminary Examination Study Guide which is available on the ECE website at http://www.ece.gatech.edu/academics/graduate/internal/graduate/prelim_exam/index.html.
• The exam is closed book, closed notes. A calculator is allowed as long as it is from the approved list that is given on the ECE Website at http://www.ece.gatech.edu/academics/graduate/internal/graduate/prelim_exam/index.html.

Advisor Selection
• Students who are looking for advisors and/or research topics should register for ECE8999.
• 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
The Dissertation Proposal Exam is the second part of the ECE Comprehensive Exam (the Preliminary Exam being the first part.) As such, there are strict regulations on help that students may receive from other people. The PhD Proposal Committee is comprised of 3-4 faculty members: the advisor (and a co-advisor, if one exists), and two faculty members selected by the student. Additional members can be added upon request.

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.

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.
• It is recommended that a student schedule the Proposal Examination within two years of passing the Preliminary Examination, and within three years of beginning the graduate program.
• The Proposal Exam 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.

Proposal Process
• The format for the Proposal Examination involves a written report and an oral presentation.
• The written proposal is no more than 35 pages including references and appendices.
• The proposal must contain a chapter or sub-chapter entitled “Literature Survey”, appearing
anywhere in the document that the student finds appropriate. The “Literature Survey” section is a minimum of five pages and must be written by the student with no outside help.

- The rest of the proposal document contains at minimum a concise statement of the PhD dissertation topic, summary of the research completed, outline of the research to be completed and clearly summarizes the contributions of the research. The student can get help in preparing the rest of the proposal document.
- Upon submission, the proposal is submitted to an outside editor for editorial review. The editorial process rolls in parallel with the faculty and t evaluations and it is not to slow down the proposal process. The editorial review is focused on the Literature Survey section of the proposal that the student prepared with no outside help, but it can touch on other major issues related to the rest of the document. Although not mandatory, it is recommended that the student, guided by the advisor, seriously considers the editor’s recommendations and makes use of this resource to improve his/her writing and achieve a professionally written dissertation.
- If the PhD Committee is satisfied with the written report, the oral presentation is scheduled. The presentation usually lasts about 40 minutes. There is a general audience question and answer period followed by a closed door examination period with the committee.

The official detailed information about preparing and presenting the proposal is available in the “ECE Proposal Procedures and Guidelines” document at the “PhD Degree Guidelines and Forms” area of the ECE website. [http://www.ece.gatech.edu/academics/graduate/internal/graduate/phd-degree.html](http://www.ece.gatech.edu/academics/graduate/internal/graduate/phd-degree.html) 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!

Proposal outcomes

- **Pass:** The committee may pass the student but give recommendations for the student’s research direction. Students should generally follow this advice, in consultation with their advisors, since those committee members will also be on the Final Defense Committee.
- **Conditional Pass:** If the committee has reservations about the student’s performance or the proposed material, they may vote for a conditional pass. A “Conditional Pass” is a pass but certain conditions set forth by the committee must be met. A sample of common conditions include
  - completion of additional courses that the committee feels are important for proper preparation
  - specific steps to take to improve oral presentation skills and/or written communication skills
  - adding an addendum to the proposal
  - redoing the oral presentation (unless the arrangements for a conditional pass specifically require that the oral presentation be repeated, it generally does not need to be done again)
  - additional concerns determined by the committee may also apply and should be communicated to the student and advisor in writing.
- **Fail:** 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) why the “Fail” decision was reached and may
make recommendations on what the student should do, for example, continuing the preliminary research until a better definition of a proposed topic is forthcoming.

- 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. If a student chooses to attempt the proposal exam again, then he/she would resubmit a proposal document. The committee may or may not be the same.

**Hung Committee:** If the committee is not in agreement at the time of the examination, the Graduate Affairs Associate Chair will follow up with the committee and negotiate a solution. If the agreement is not reached after mediation, the student will restart the proposal process from the very beginning. The student has two more attempts and has the option to form a new proposal committee.

**After passing the proposal**

- The PhD Proposal Committee members chosen by the student, including the advisor, become the PhD Reading Committee Members. Only these people need to sign the “Request for Admission to PhD Candidacy Form”.
- 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, signed by the student and advisor/co-advisor.
- 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.

**Dissertation and the Final Defense**

- The primary requirement of the PhD student is do original and substantial research that is reported in the PhD Dissertation and at 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.
- The **Final Defense Committee** is composed of five people including the Reading Committee members plus two extra members. All faculty members who signed the “Request for Admission to PhD Candidacy Form” must be on the Final Defense Committee. The two extra members are chosen as follows:
  - One of the members has to be outside the School of Electrical and Computer Engineering. This person can be from another university, with the restriction that they are not within one year of having earned the PhD degree. If the person is not a Georgia Tech faculty member, then that person must provide a current CV in order to be approved by the Institute Graduate Office. Outside ECE faculty who have an adjunct position in ECE are approved, but not faculty with double appointments in ECE and another department.
The last committee member can be ECE faculty. At minimum, he/she must hold a PhD and be active in research. If the extra person is not a Georgia Tech faculty member, then a CV must be provided to the ECE Graduate Office for approval.

- This Final Defense Committee is recommended to the Institute Office of Graduate Studies – VPR office. The Director of Graduate Studies may modify the recommended committee if so desired.
- The student should submit the dissertation to the Reading Committee with sufficient time to examine, typically at least two weeks. Once the Reading Committee is satisfied that the Final Defense can be held, the student must submit the “Reading Committee Report” authorizing the scheduling of the Final Defense.
- Once the “Reading Committee Report” is submitted to the ECE Graduate Office, the Final Defense can be scheduled.
  - The full committee should receive a copy of the dissertation at least two weeks prior to the Final Defense date.
  - The PhD Final Defense must be publicized for two weeks, and it must be open to the public. The Graduate Office must receive the Final Defense Memo at least two weeks in advance of the event. This memo, a template of which is located on the ECE Graduate website under forms and files, should be sent to grad-help@ece.gatech.edu with the subject heading “Final Defense Scheduled”.
- The Certificate of Thesis Approval which is available through the Graduate Studies – VPR office website at http://www.grad.gatech.edu/theses-dissertations-forms 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/theses-dissertations)
- A document which discusses the timing of events leading up to and including the thesis defense is available at the “PhD Degree Guidelines and Forms” area (http://www.ece.gatech.edu/academics/graduate/internal/graduate/phd-degree.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**

- A “Ph.D. student” is defined as one who has accepted an admission offer that indicated "Ph.D." rather than "Masters" degree.
- MS students who wish to be reclassified as Ph.D. students should contact an Academic Advisor for additional information.
- The Institute requires that Ph.D. students (full-time or part-time) complete all degree requirements within 7 years of passing the comprehensive examination, that is, the PhD Proposal Exam in ECE.
• Graduate students in the ECE degree programs are expected to make diligent progress toward the Ph.D. degree. It is in the best interests of both students and faculty for all students to progress through the program expeditiously. Recommendations for reasonable progress are defined as follows:
  o 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.
  o Students seeking a Ph.D. degree are expected to take the ECE Preliminary Examination at each available opportunity until they pass the exam.
  o 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).
  o 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.
  o Each individual student must take the initiative to connect with an advisor within technical interest area within his/her first year at Georgia Tech.
  o It is recommended that all Ph.D. students take the Proposal Examination within two years of passing the Preliminary Exam, or by the end of their third year of graduate studies.
  o It is recommended 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.
• 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.
  o This notification will normally occur at the beginning of Spring or Fall semester.
  o 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.
  o 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.
  o 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.

Additional Considerations
• 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.
  o Students supported as GRAs are expected to coordinate internships with their advisor.
  o 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.
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://fellowships.gatech.edu/](http://fellowships.gatech.edu/).
- 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.
- ECE has imposed a maximum yearly stipend from fellowships plus GA/GTA/GRA to be $45,000. A student may receive external fellowships beyond that amount, subject to conditions on those fellowships, but GA/GTA/GRA supplements beyond $45,000 are not allowed.

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](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. Co-op students need to be registered the semester of the co-op for 12 hours.
  - A co-op approval request form is available on the ECE website in the General ECE and Georgia Tech Procedures, Policies and Forms area of the ECE website ([http://www.ece.gatech.edu/academics/graduate/internal/graduate/procedures.html](http://www.ece.gatech.edu/academics/graduate/internal/graduate/procedures.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.

- Timing of 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.
  o Students may be permitted to spend one regular Fall/Spring semester as an intern/co-op in an industrial or government position per degree (that is, once while seeking the MS degree and once while seeking the PhD degree).
  o 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.
- Students supported as GRAs are expected to coordinate internships/co-ops with their advisor.
- 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.
- International students who have completed less than two semesters of full-time graduate level study in ECE's graduate program will 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 Teaching and Research Assistantships
Some students are offered assistantships as part of their admissions package. Others arrange assistantships through direct contact with faculty working in an area of shared research interest. Graduate Research Assistants (GRA) and Graduate Teaching Assistants (GTA positions come with a tuition waiver, with the requirement that the students are registered full time.

- Common Rules for GRAs and GTAs:
  o To be eligible for the tuition waiver, GRA/GTAs must be employed at a minimum rate of one-third time (13-15 hours per week) and must be enrolled full time (at least 12 hours of credit, no more than 3 of which are audit). **Students who fail to meet one of these criteria are assessed full tuition and fees based on their residency status.**
    ▪ As a courtesy to students, 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.
  o No student can be employed as a GTA/GRA for more than 50% time (20 hours per week).
  o 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.
  o GRA/GTAs must be hired no later than the end of the final registration period for the term.
  o It is the responsibility of the hiring faculty member to supervise the assistantship efforts of the students in their employ each term.
  o 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.
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 tuition waiver can be recorded.

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).

The priority for GTA hires is the following: 1) students to whom GT has a commitment (such as fulfilling an admission offer obligation), 2) students who have a unique qualification to TA a specific course, 3) PhD students who have temporarily lost funding and are otherwise making good progress towards their degree, 4) students who are well-qualified and making good progress towards their degree.

- PhD students who wish to be hired under category 3) above must have their advisor request the position by contacting the Associate Chair for Graduate Studies. That request should contain the following information: why the student needs funding, how long the support is expected to be needed, and the last time that such a request was made from that advisor (for any of his/her students). Priority for these cases will be to students who are making good progress towards their degree and whose advisors have not received recent GTA funding for any of their students.

- An exception to the priorities above is for instructors of ECE 3710, the course for non-majors. Only students who have an MS degree or who have completed 30 hours towards their degree are allowed to teach this course. **We strongly encourage any student who is interested in an academic career to consider teaching ECE 3710.** We typically guarantee at least two terms of support for these instructors. These instructors are also required to take CETL 8000 ECE section.

- All GTAs must register for ECE 8997 each semester in which they are a GTA.
- As of Fall 2013, **all GTAs must take CETL 8000**, a one credit hour pass/fail class, during their first term as GTA. The first 10 hours of CETL 8000 are offered the week before the semester starts, so the students who accepted a TA offer MUST plan their arrival in Atlanta early.

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.**
o All GRAs must register for ECE 8998 each semester in which they are a GRA.

Hourly (or Graduate Assistant) Positions
• Students may be hired as a Graduate Assistant (GA) and paid on an hourly basis. However, Georgia Institute of Technology applies significant restrictions to the hiring of graduate students as GAs.
  o Hourly appointments **must be** approved by the Associate Chair for Graduate Affairs **before** the student is hired since ECE must be able to justify the hourly appointment to the College of Engineering and to the GT Graduate Studies Office.
  o Hourly (GA) hires are appropriate only in the following circumstances:
    ▪ Students are not eligible to be hired as a GRA or GTA since they are employed for less than 12 hours per week, will be away from campus for a significant portion of the semester and are not registered as full time.
    ▪ Students whose position does not entail research or education may be hired as a GA.
    ▪ Students whose fellowship pays for tuition are hired as a GA rather than a GTA or GRA.
• 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.

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 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, MS and PhD students must submit an Online Application for Graduation (OAG) through OSCAR. MS students ONLY are required to submit both OAG and a paper degree petition/program of study, along with ECE’s required forms to ECE’s Academic Office by the deadline dates listed at http://www.ece.gatech.edu/academics/internal/graduate/degree_petition/index.html.
- Downloadable versions of the forms needed to complete a degree petition packet are available from the Student Resources Menu in the “Academics” area of the ECE website.
- Master’s and PhD degrees differ slightly from each other:
  - Ph.D. students submit Online Application for Graduation (OAG). This is done through OSCAR.
  - M.S. students submit OAG, paper degree petition/program of study, and the “Classes by TIA” form with classes to be used toward the degree circles.
  - Degree petitions are to be printed “landscape” style and are to be typewritten, not handwritten.

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 listed at http://www.ece.gatech.edu/academics/internal/graduate/degree_petition/index.html.
- If the ECE submission deadline 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 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.
- 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.
- After the petition is processed by the Registrar's Office, its status may be checked at http://www.degreeworks.gatech.edu/.
- 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.
- 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.

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.
  o 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.
  o 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.
  o 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 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.

Online Master’s Degree Students

• It is Georgia Institute of Technology policy that Online Master’s Degree 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, online students must include a completed enrollment waiver form with their degree petitions.

Online Master’s Degree students must file their degree petitions and related forms with the ECE Academic Office.

Preparing the Degree Petition Materials for MS Students
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.

Enrollment Waiver Form

Note for Online Master’s Degree Students (and other students who will not be enrolled in the term of graduation) - Because of the Georgia Tech policy that online 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. Students will be contacted by the Office of Assessment prior to graduation to complete the online exit survey.

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

Online Master’s Degree students mail their degree petitions to the ECE Academic Office.

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/academics/graduate/contact.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/Reapplying to Graduate

• MS students who do not graduate in the term for which they petitioned, must submit a reactivation degree petition and submit an Online Application for Graduation (OAG) no later than the deadline date listed on ECE’s website. MS reactivation petitions should include the listing of classes to be used toward the degree in Sections 2A and 2B of the reactivation petition.

• PhD students are only required to submit another OAG to reapply for graduation.

• Reactivation petitions must be filed no later than the deadline dates listed on ECE’s website.
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. 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.

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, holiday, or weekend), must file an “Absence Request” form with the ECE Graduate Affairs Office. This form, located on the ECE Website, is prepared by the student and must be reviewed by the student’s advisor. If the advisor supports the absence request, he/she 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. It should be noted that these forms do help us to locate a student in case of an emergency or some other valid reason requires knowledge of their whereabouts.

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.

Alternative Study Opportunities

Online Master’s Degree
The MS degree in Electrical and Computer Engineering is also offered online. Detailed information about this program is available at www.dlpe.gatech.edu.

Most online students are admitted directly into the Online Master’s Degree program. Occasionally an on campus student may wish to switch to online studies. 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 Online Master’s Degree 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 are also available. For information about opportunities for study at GTL, please contact the Deputy Director at Georgia Tech Lorraine at 404-894-6617 or visit the GTL website at: http://www.georgiatech-metz.fr.

Georgia Tech – Shenzhen
Starting in Fall 2014, Georgia Tech offers its existing MS degree in Electrical and Computer Engineering in Shenzhen, China, housed at the Shenzhen Virtual University Park (SZVUP). SVUP is an innovative model in China emphasizing university-industry partnerships, technology transfer and business incubation. Situated next to Hong Kong, Shenzhen has the fourth largest GDP in China. It is a clean, green city, has a young population and it very high-tech. GT-Shenzhen will serve as a platform for graduate study abroad for all GT students. A unique program - the Global Engineering Immersion Program (GEIP) - will capitalize on GT’s academic presences in Atlanta, GA, Lorraine, France, and Shenzhen, China, and encourage students to complete the GT MS degree by studying with GT on 3 different continents as little as 12 months. More information about this program can be found on the Georgia Tech – Shenzhen website http://www.shenzhen.gatech.edu/index.html or by contacting the Georgia Tech – Shenzhen 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.

ECE also participates in two interdisciplinary degree programs: the PhD in Robotics, and the MS and Ph.D. degree programs in Bioengineering. New students seeking admission to Georgia Tech would mark one of these options on the application as the discipline. Existing students transfer into these programs would be required to submit a new application to be considered for admission.

**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](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.

**Communication with Students**
- The Georgia Institute of Technology email account is the official means of communication with Georgia Tech students.
- All ECE graduate students are required to activate their Georgia Tech email accounts.
- Students who prefer to use an email service other than the Georgia Tech email as their primary account, **must** arrange for messages sent to the official 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 three bulk email addresses as a means of getting information to our graduate students.
  o grads@ece.gatech.edu is used to convey academic-related information to students. This email address is built from the enrollment rolls each term.
  o phds@ece.gatech.edu goes only for the PhD students as they are classified at the beginning of the term.
  o 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). Your Georgia Tech email address should be used when subscribing to news_grads@ece.
    ▪ Students who would like to be removed from the mailing list would need to log into the secure website and choose the option to unsubscribe. Students who have graduated and no longer have valid log-ins may send a note to help@ece.gatech.edu requesting to be unsubscribed. They should include their GT ID in that request.

• 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.

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/

Other Requirements and Information

• 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.

• 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.

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.
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 and the Graduate Option.

The BS-MS Program

- The BS-MS program permits early admission into the MS program, streamline application for graduate school, and dual credit for six hours of undergraduate or graduate courses (Must be 4000 level or higher) taken as an undergraduate.
- 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. Application must be made during the term in which students complete ECE 3040 (EE) or ECE 3030 (CmpE) or by Drop Day of the term immediately following completion of ECE 3040 or ECE 3030.
- 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.
- 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 3.50 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 undergraduate or graduate level ECE 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 graduated with a BS from ECE with at least a 3.5 GPA may choose the “Graduate Option” rather than the BS-MS plan. In this case, they apply to graduate school using the full application and they may double-count 6 credits taken as a Georgia Tech undergraduate towards their MS degree provided that the classes meet the 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.

- Students who completed their undergraduate degree in ECE, including those, who are ineligible for the BS-MS program may be able to count excess courses taken as an undergraduate towards their MS degree. (This information will be verified by an ECE undergraduate advisor).
  - 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.
    - BS/MS students and Graduate Option Students who double-count 6 credits towards their MS degree are allowed one additional graduate level course (taken as an undergraduate and not used towards the BS degree) to count towards their MS 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 to take the Ph.D. Preliminary Examination one time during.
• 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 at http://www.ece.gatech.edu/academics/internal/graduate/prelim_exam/index.html.
• 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:
  o Select "Academics" from the home page.
  o Select "Overload/Permit Request System" from the "Related Links" column on the left and read the directions.
  o Next click on the button marked “Graduate (ECE 6000-9999)” to file a request for permission to take an ECE graduate level class.
  o 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.
  o 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. Students wishing to change their major to ECE will be required to submit an application through the normal online process. In order to be considered for either of these options the following must occur:
  o 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 four ECE courses at Georgia Tech. This is done by filing the following materials with the ECE Graduate Affairs Office:
    o 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.
- 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.

- A current, official GT transcript

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.
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
    - 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 or http://www.registrar.gatech.edu/contact.php for matters concerning:
  - Registration, Graduation, Degree Completion Verification
  - Enrollment Certification
  - Institute Academic Policy

Office of International Education
Seek information on their website (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)
  - 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 (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.

CORRECTIONS WELCOME. If you encounter errors, inconsistencies, or out-dated information in this document, please let us know—many eyes make a clearer handbook. If there’s information that you think should be added, please don’t hesitate to let us know by filing a change request through the “Contact Us” site.
APPENDIX
COURSES PREAPPROVED FOR USE AS A PHD MINOR OR MS MINOR

Math:

4107 Abstract Algebra I
4108 Abstract Algebra II
4150 Introduction to Number Theory
4255 Monte Carlo Methods
4261 Mathematical Statistics I
4305 Topics in Linear Algebra
4317 Introduction to Analysis I
4318 Introduction to Analysis II
4320 Complex Analysis
4347 Partial Differential Equations I
4387 Partial Differential Equations II
4431 Introductory Topology
4432 Introduction to Algebraic Topology
4441 Differential Geometry
4542 Dynamics and Bifurcations II
4580 Linear Programming
4640 Numerical Analysis I
4641 Numerical Analysis II
4782 Quantum Information and Quantum Computing

Most 6000 (or higher) level math courses will be considered for approval for use toward the minor requirement.
CS:

Approved Undergraduate Courses:

CS 4240 Compilers and Interpreters
CS 4400 Introduction to Database Systems
CS 4455 Video Game Design
CS 4475 Computational Photography
CS 4495 Computer Vision

CS 4590 Computer Audio
CS 4641 Machine Learning
CS 4752 Philosophical Issues in Computation
CS 4777 Vector and Parallel Scientific Computing

Approved Graduate Courses:

CS 6035 Intro to Info Security
CSE 6040 Computing for Data Analytics
CS 6140 Computational Science & Engineering (CSE) Algorithms
CS 6210 Advanced Operating Systems
CSE 6220 Intro to High Performance Computing
CSE 6230 High-Performance Parallel Computing: Tools and Applications
CS 6235 Real-Time System Concepts and Implementation
CSE 6236 Parallel and Distributed Simulation Systems
CS 6238 Secure Computer Systems
CSE 6240 Web Search and Text Mining
CS 6241 Design and Implementation of Compilers
CSE 6242 Data and Visual Analytics
CS 6250 Computer Networks
CS 6260 Applied Cryptography
CS 6262 Network Security
CS 6300 Software Development Process
CS 6310 Software Architecture and Design
CS 6320 Software Requirements Analysis and Specifications

CS 6140 Computational Science & Engineering (CSE) Algorithms
CS 6210 Advanced Operating Systems
CSE 6220 Intro to High Performance Computing
CSE 6230 High-Performance Parallel Computing: Tools and Applications
CS 6235 Real-Time System Concepts and Implementation
CSE 6236 Parallel and Distributed Simulation Systems
CS 6238 Secure Computer Systems
CSE 6240 Web Search and Text Mining
CS 6241 Design and Implementation of Compilers
CSE 6242 Data and Visual Analytics
CS 6250 Computer Networks
CS 6260 Applied Cryptography
CS 6262 Network Security
CS 6300 Software Development Process
CS 6310 Software Architecture and Design
CS 6320 Software Requirements Analysis and Specifications

CS 7260 Internetworking Architectures and Protocols
CS 7270 Networked Applications and Services
CS 7290 Advanced Microarchitecture
CS 7292 Reliable Secure Computer Architectures
CS 7450 Information Visualization
CS 7460 Collaborative Computing
CS 7470 Ubiquitous Computing
CS 7490 Advanced Image Synthesis
CS 7491 3D Complexity
CS 7495 Computer Vision
CS 7496 Computer Animation
CS 7497 Virtual Environments
CS 7510 Graph Algorithms
CS 7520 Approximation Algorithms
CS 7530 Randomized Algorithms
CS 7535 Markov Chain Monte Carlo Methods
CS 7575 Machine Learning Theory
CS 7610 Modeling and Design
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<th>Course Title</th>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>CS 6330</td>
<td>Software Generation, Testing, and Maintenance</td>
<td>CS 7616</td>
<td>Pattern Recognition</td>
</tr>
<tr>
<td>CS 6340</td>
<td>Software Analysis and Testing</td>
<td>CS 7631</td>
<td>Multi-Robot Systems</td>
</tr>
<tr>
<td>CS 6365</td>
<td>Introduction to Enterprise Computing</td>
<td>CS 7632</td>
<td>Game AI</td>
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<td>CS 6390</td>
<td>Programming Languages</td>
<td>CS 7633</td>
<td>Human-Robot Interaction</td>
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<td>CS 6400</td>
<td>Database Systems Concepts and Design</td>
<td>CS 7637</td>
<td>Knowledge-Based AI</td>
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<td>CS 6440</td>
<td>Introduction to Health Informatics</td>
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<td>Database Systems Concepts and Design</td>
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<td>CS 6422</td>
<td>Database Sys Implement</td>
<td>CS 6440</td>
<td>Introduction to Health Informatics</td>
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<tr>
<td>CS 6451</td>
<td>Intro to Human-centered Computing</td>
<td>CS 6422</td>
<td>Database Sys Implement</td>
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<td>CS 6455</td>
<td>User Interface Design and Evaluation</td>
<td>CS 6451</td>
<td>Intro to Human-centered Computing</td>
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<td>CS 6456</td>
<td>Principles of User Interface Software</td>
<td>CS 6455</td>
<td>User Interface Design and Evaluation</td>
</tr>
<tr>
<td>CS 6457</td>
<td>Video Game Design and Programming</td>
<td>CS 6456</td>
<td>Principles of User Interface Software</td>
</tr>
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<td>CS 6460</td>
<td>Design of Online Communities</td>
<td>CS 6457</td>
<td>Video Game Design and Programming</td>
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<td>CS 6480</td>
<td>Computer Visualization Techniques</td>
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<td>CS 6491</td>
<td>Computer Graphics</td>
<td>CS 6480</td>
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**Note:** CS 6260 and ECE 6280 cannot both be taken for credit.