Electrical Engineering Graduate Handbook
2014-2015

Charles L. Brown Department of Electrical & Computer Engineering
School of Engineering and Applied Science
University of Virginia
This handbook outlines the policies and procedures of the graduate program of the Department of Electrical and Computer Engineering at the University of Virginia. It should be viewed as a supplement to the University of Virginia Graduate Record, which summarizes the rules and regulations of the University and the School of Engineering and Applied Science (SEAS). http://www.seas.virginia.edu/advising/degreereq.php

Contacts: 434-924-6077 (Graduate Office)

ecegradoffice@virginia.edu
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Message from the Chairman

Electrical engineers continue to provide technological leadership for developments in all fields of society, including computers, computer-aided engineering, telecommunications, automatic control, optics, semiconductors, nanotechnology, and energy conservation. In addition, electrical engineers are being challenged to supply technical expertise in many other fields such as energy management, transportation systems, health care delivery, and public policymaking.

The Charles L. Brown Department of Electrical and Computer Engineering, at the University of Virginia, is one of the eight departments in the School of Engineering and Applied Science and offers undergraduate and graduate study programs. Fields of research include control systems, machine vision, computer engineering, VLSI systems, communications and information theory, signal and image processing, semiconductor and superconductor electronics, nanoelectronics, millimeter wavelength technology, pattern recognition and image processing, and network analysis and synthesis. In addition interdisciplinary programs are offered in collaboration with the departments of Systems Engineering, Applied Mathematics, Computer Science, Mechanical and Aerospace Engineering, Biomedical Engineering, and Engineering Physics.

The Electrical and Computer Engineering program has established an excellent reputation with industry as a source of outstanding engineers. The department faculty maintains this reputation by continually updating curricula to reflect current scientific and technological advances and requirements and by maintaining a vigorous research program designed to provide staff and graduate students with high-level learning experiences relevant to the needs of our society.

With its excellent facilities and internationally recognized faculty, the Charles L. Brown Department of Electrical and Computer Engineering at the University of Virginia has become a major player in the development of cutting-edge technology and engineering personnel for the 21st century. We hope you like what you see, and that you will contact us with any questions or comments that you may have.

John C. Lach,
Professor and Chair
General Academic Policies

The Department of Electrical and Computer Engineering offers programs of study leading to the M.E., M.S. and Ph.D. degree. The academic requirements for the degrees are set by the faculty of the department. The EE Graduate Committee acts on behalf of the faculty on matters relating to admission, implementation of the graduate program procedures, and directing financial aid. Graduate students, together with their advisor, are responsible for planning a course of study leading to a desired degree. The EE Graduate Office and SEAS Graduate Office are charged with ensuring that the appropriate degree requirements are met.

The EE Graduate Committee is responsible for tracking your academic progress. The Graduate Office ensures SEAS documentation is completed, disbursing GTA and GRA funds, assigning GTAs, graduate student admissions, and other day-to-day support.

Students should refer to the SEAS Website for additional information, and for all forms mentioned in this handbook: [http://www.seas.virginia.edu/advising/degreereq.php](http://www.seas.virginia.edu/advising/degreereq.php)

Student Status and Residency Requirements

Candidates for the Master of Science degree must complete at least one semester in residence as a full-time student at the University of Virginia. Candidates for the Doctor of Philosophy degree must complete at least three sessions (or the equivalent) of graduate study beyond the baccalaureate degree, or two sessions (or the equivalent) after the master’s degree. At least one session beyond the master’s degree must be in full residence at the University in Charlottesville (a session is two semesters not including the summer semester).

A student receiving financial aid from the School of Engineering and Applied Science must be registered full time, defined as at least 12 credit hours of lecture-laboratory courses and/or research per semester during the academic year, must maintain a grade point average of at least 3.0, and must maintain satisfactory progress toward a degree. Graduate research assistants must register for a minimum of 6 credit hours of research only during the summer. Students receiving financial aid are not permitted to have other employment without prior approval of the Office of Associate Dean for Graduate Programs.

Probation and Dismissal Policies

A graduate student will be considered to be on probation if his/her cumulative GPA for graduate work is less than 3.0 and will be notified of this situation by the Dean’s Office. Graduate students on probation are usually ineligible for financial aid. A graduate student will be subject to dismissal if the cumulative GPA is not raised to 3.0 within one semester. Undergraduate courses and courses taken on a Pass/No Credit basis may not be used to meet requirements for a graduate degree and will not be used in computing the GPA.

Time Limit for Degrees

The time limit for completion of the M.S. is five years after admission. The time limit for the M.E. is seven years, and the Ph.D. is seven years after admission into the Ph.D. program.

Transfer of Credit

Master of Science candidates may transfer a maximum of 6 credits of approved graduate courses into the program. Master of Engineering candidates may transfer 12 hours of graduate credit. Students in the Commonwealth Graduate Engineering Program (CGEP) may include up to 15 hours of credit with grades of
C or better from participating institutions (an overall GPA of 3.0 must have been maintained at the participating institution). Students not enrolled in the Commonwealth Graduate Engineering Program may only transfer courses with a grade of B or better. Students should discuss courses acceptable for transfer of credit with their advisor; the transfer credit form can be found on the SEAS website. This form is required for transferring courses along with a catalog statement of course level and the grading system that justifies classification of these courses as graduate-level courses. An official copy of the transcript from the institution where the course(s) was taken is required.

**Graduate Course Drop Deadline**

The last date for dropping a graduate course is determined by the Registrar’s Office. Check the academic calendar for the current list of deadlines. (When deadlines are missed, students may petition the Dean's Office for a W or WP upon concurrence of their instructor and advisor).

**Incomplete Grades and Repeated Courses**

A 10-day period past the end of the semester (end of the examination period) is automatically allowed to remove an incomplete. Maximum extension to the end of the following semester (e.g., following Fall for a Spring class) may be granted by special request to the Dean's Office. If a course is repeated both grades are used in the GPA calculation.

**Articulation Requirements**

Graduate level electrical and computer engineering research is a broad discipline that utilizes skills from many diverse fields. Students entering the graduate ECE program from a non-electrical background are welcome within the UVA ECE department. All students should have completed undergraduate coursework in at least three of the following electrical and computer engineering undergraduate topic areas. This background capability is required by the faculty to 1) exhibit sufficient core knowledge associated with graduate-degree electrical engineers, and 2) to provide adequate preparation for graduate classes and research.

- Circuit Analysis
- Logic Design
- Linear Systems
- Communication Theory
- Electronics
- Signal Processing
- Control Theory
- Electronic Materials
- Optoelectronics
- Computer Architecture
- Device Physics
- Electromagnetics
- Power
- Software Engineering
- Quantum Physics
- Engineering Mathematics

These requirements may be satisfied in the following ways:

- Relevant undergraduate course work for example, a physics course in electromagnetic fields.
- Successful completion of an appropriate UVA undergraduate courses (B or better grade).
- Independent study and examination. Students may take a proficiency examination and pass with a B or better in an appropriate UVA undergraduate courses during the normally scheduled examination period, or by special arrangement with the instructor.
Responsibilities of Graduate Students

As a graduate student in the University of Virginia you have been given a unique opportunity for intellectual growth in a vibrant academic community. This opportunity comes with some responsibilities on your part as a student, researcher, and teacher.

Academic Progress

The responsibility for your academic progress is largely your own. You must ensure that you are completing the necessary documentation as you progress through the program. The EE Graduate Program Director will be able to give you general guidance in meeting the academic regulations of the institution, SEAS, and the department. Your own academic advisor will assist you in preparing a plan of study that fits with the graduate-level courses.

Research Assistants

The award of a Graduate Research Assistantship (GRA) and the stipend and tuition fee remission associated with it is paid out of research-group funds. A GRA is not a grant to the student but is payment for student contributions to the research program. GRA funds are awarded to the research group for the completion of a project of research, the results of which will be reported back to the funding organization. If you receive a GRA, then you are essentially an employee working on that particular project. Your responsibility is to complete the assigned project tasks while maintaining your own academic progress. It is possible that your GRA funding will come from a research project other than the one with which your research work is connected. In this case, it is still your responsibility to maintain academic progress in both research and coursework.

Teaching Assistants

The award of a Graduate Teaching Assistantship (GTA) and the stipend and tuition fee remission associated with it is paid by institutional funds. As a teaching assistant, a graduate student carries considerable responsibility as a representative of the University in the laboratory and the classroom. To be appointed to a GTA position, an international graduate student must have passed the SPEAK Test or completed the appropriate follow-up course work. This test is administered by the Center for American English Language and Culture as part of the International Teaching Assistant Testing and Training Program. This program scores the verbal communication skills of prospective GTAs and offers further training if the score is not over the required 55-point proficiency level. This test is in addition to the TOEFL (required for admission) and the VELPT (Virginia English Language Proficiency Test) required of all international graduate students.

As a GTA, your primary responsibility is to the course instructor. Once selected for a GTA position you should contact the instructor and clarify the duties expected of you. As a GTA laboratory assistant, your most important task is to become familiar with the experiments. This involves discussing them with the instructor, reading the laboratory manual, and performing the experiments before the scheduled day of the laboratory class. You should expect ample support from the faculty supervisor for the class, so ask for more help if it’s not adequate.

Scholarship

As a graduate student, a high level of scholarship is expected. You are required to maintain a B average (cumulative) in your coursework. You will be engaged in narrow and sophisticated fields of research, yet you
will be required to know (and possibly teach) broad fundamentals. You will be expected to know detailed technical literature relevant to your project and know the fundamental concepts and breakthroughs that brought your field to its current state of development. You will present your work in the form of project reports, theses, dissertations, conference proceedings, and journal publications. You will give presentations to faculty and students within the SEAS community and to wider audiences at conferences and colloquia. These expectations will place your verbal, written, and technical communication skills under the microscope. Before reviewers will take your work seriously, it must be free from spelling, grammatical, typographical, and style errors. It must be readable and it must be presented according to the principles of clear technical communication. To assist you in the continuous improvement of your communication, mathematical, and scientific skills, the EE Graduate Committee strongly recommends the following:

1. Obtain a good dictionary (such as Webster’s Collegiate) and use it. Don’t rely on your spell-checker.
3. Have access to a definitive reference on issues such as units, number usage, prefixes, abbreviations, designations, and mathematical and scientific symbols. All of these items are treated in the NIST publication: Guide for the Use of the International System of Units (SI). Have access to a definitive reference for the symbols used in your field. Comprehensive symbols and designations listings are available from the IEEE Standards Society.
4. Read at least one of the many texts available that review the procedure for writing technical reports and scientific papers. Two very good works are:
5. How to Write and Publish a Scientific Paper (SCI-ENG T11.D33)
7. You may often need to review mathematical topics or look up an integral or identity. A good mathematical reference for engineers is:

Involvement

All graduate students should attend the annual graduate-student orientation activities at the beginning of fall semester. This is a good opportunity to meet with your peers, meet new graduate students, and be reminded of the academic policies and procedures.

Library

You should get to know the services available from the Charles L. Brown Science and Engineering Library (Clark Hall). The library contains current periodicals, and has considerable holdings of back issues of the major journals. An inter-library loan service is offered for prints and books. The library website (www.lib.virginia.edu/science) contains a wealth of information relating to databases for engineering and the electrical sciences. You can schedule a research tutorial (from the website) with one of the librarians, and tailor this tutorial to your research activities. A liaison is assigned by the library to each academic department. The ECE liaison is Fred O’Bryant.
IEEE

Graduate student membership and participation in IEEE activities is strongly encouraged. A student member may attend the Central Virginia Section monthly dinner meetings that rotate between Charlottesville, Waynesboro, and Lynchburg. There is also an active Student Chapter of IEEE, which sponsors technical talks on career choices, employment areas, plant visits, and some social events. A small membership fee is required. Stop by the office of the faculty advisor, Professor Harry Powell, in E203 Thornton Hall, and pick up an application form.

Seminars

The Department of Electrical and Computer Engineering sponsors weekly seminars featuring UVa faculty and visiting scholars. All graduate students are required to attend unless they have a conflict due to classes or research travel. Talks are designed to inform the non-specialist about current research on a wide variety of science and engineering topics. Announcements of seminars are emailed to faculty and students.

Master's Degree Requirements

The department offers two master's degrees, a Master of Science (MS) that requires a thesis, and a Master of Engineering (ME) that does not. Students receiving financial support from the department in the form of a GRA, GTA, or a fellowship will generally be required to pursue the MS (thesis) option, unless approval is obtained from the EE Graduate Committee. Students enrolled in the MS program must obtain the agreement of an advisor to supervise a MS thesis.

English Language Proficiency Requirements: if applicable (see Special Graduate Course Requirements on page 15 of this handbook).

Academic Advisor: Select an advisor and with his/her assistance, determine a plan of study (no form). When properly completed and approved, it represents the course curriculum for the degree. The plan must include 31 graduate credits:

- 1 credit of ECE 6505: ECE Seminar (only offered in the Fall semester).
- The MS requires 24 credits of graded coursework plus 6 credits of ECE 8999 – Thesis.
- The ME requires 30 credits of graded coursework, which may include 3 – 6 credits of ECE 6995/ECE 7995–Master’s Project.
- A minimum of 12 credits must carry ECE designation, 3 credits of mathematics at, or above, 5000-level are required for both MS and ME degrees, and may be taken from APMA, MATH, ECE 6711, ECE 7438, and SYS 6005.
- No more than 9 credits of 5000-level courses are permitted.
- No more than 6 credits of 5000-level courses may be in the ECE Dept.
- No more than 3 credits of Independent Study (e.g. ECE 6993, ECE 7993) are permitted.
- For both MS and ME degrees, undergraduate articulation courses may be required of students with other than the traditional ECE background.
Final Examination

1) Student and advisor select an examining committee and date for the examination.
   - MS thesis examination requires a minimum of three UVA faculty members, one of whom will be the thesis advisor. At least two members must be from SEAS. One research professional or faculty member from outside UVA may be a fourth voting member on the committee, provided that his/her qualifications are commensurate with that of a research faculty or equivalent rank.
   - Thesis advisor cannot chair the examining committee.
   - The committee chair must be from the ECE Department.

2) Prepare thesis for distribution and reserve room. Select a conference room for your examination and check availability with the ECE Graduate Office.

3) Announce the oral examination of the thesis.
   - Obtain an example announcement format from the ECE Graduate Office.
   - Send e-mail copies of your announcement to eegradoffice@virginia.edu.

4) Conduct master’s thesis examination as scheduled. The format of the oral defense is a presentation by the student followed by a question and answer period. The student presentation portion of the defense should not exceed 45 minutes. In the event of an unsuccessful thesis examination, a majority of the examining committee may recommend a further examination—after the student has been given time to prepare.

5) Request Examining Committee 14 days before the examination date.

6) Return Report on Final Examination and Thesis Assessment and to Graduate Office.
Doctoral Degree Program

English Language Proficiency Requirements: if applicable (see Special Graduate Course Requirements on page 15 of this handbook).

Academic Advisor and Advisory Committee:

1) Select an advisor and, in consultation with the advisor, an advisory committee during the first semester of doctoral study. The advisor normally is a faculty member in the student’s primary area of interest. The advisory committee requires a minimum of four members. At least three should be SEAS faculty, one of whom should represent minor interests and one must be from outside the ECE Department. The chair of the advisory committee must be an ECE faculty member.

2) The student must meet with his/her advisory committee to determine a plan of study. Before this meeting the student should meet with his or her advisor and prepare a preliminary academic outline consisting of previous degrees, proposed Ph.D. major and minor areas of study, list of completed graduate courses, a copy of a transcript of graduate and undergraduate courses, and a list of proposed courses for the Ph.D. degree. The student must complete at least 24 hours of ECE 9999-Dissertation Research and at least 12 hours of graduate-level graded coursework beyond the master’s degree. The student must also complete at least three hours of graduate-level mathematics beyond the bachelor’s degree, the graduate teaching requirement, and the 1 credit of ECE 6505: ECE Seminar (offered in the Fall semester) (see also Special Graduate Course Requirements in this handbook). These are the minimum course hour requirements; the student’s advisory committee may require additional courses.

3) Ph.D. students who did their master’s work elsewhere must fulfill the total Ph.D. course hour requirement (as above) and the articulation requirement outlined in this handbook. Transfer credit form is at the SEAS website cited earlier.

   Summary: (minimum 72 hours total):
   24 hours MS coursework
   24 hours Dissertation Research ECE 9999
   12 hours coursework beyond MS/ME
   9 hours of coursework and/or research
   3 hours Teaching Experience ECE 6996
   1 hour of ECE 6505: ECE Seminar

4) While many Ph.D. students will complete a master’s degree before entering the Ph.D. program, Ph.D. seeking students may be admitted directly to the Ph.D. program from a baccalaureate program with the approval of the Graduate Committee. Direct Ph.D. students must still complete the course-hour requirements of a master’s degree as part of their Ph.D. program.
Ph.D. Qualifying Examination

Ph.D. students are required to pass a qualifying examination early in their graduate studies. The objective of the exam is to assess the student’s potential to perform doctoral-level research.

Students enrolled in the master’s program at the University of Virginia who wish to continue on for the doctoral program must pass the qualifying examination before or within the first semester after their master’s degree. Students who have obtained a master’s at another university must pass the examination before completing their third academic semester in the doctoral program at the University of Virginia.

The qualifying examination is not based on a specified list of topics but rather will evolve from a short research presentation by the student. This presentation (lasting no more than 20 minutes) can be based on the student’s M.S. project work and/or the student’s research interests. The qualifying examination (lasting no more than 2 hours) will begin with this presentation, which will serve as a starting point for, and be followed by, questions from the qualifying examination committee. The questions can be in-depth or in-breadth, and may cover any topic logically connected to the presentation. The student should be well-grounded in the fundamentals of topic areas related to the presentation.

A detailed set of guidelines for preparing the Ph.D. qualifying exam are available in the graduate office.

The qualifying examination committee requires four members. It will consist of three ECE professors chosen by the graduate committee. The examining committee chair will have interests in an area related to the student’s research, a second member will also be in a related area, and the third member will be from an area not closely related to the student’s research topic. The student’s research advisor will also be present, but may not ask questions or answer questions put to the student. The student should request appointment of an examination committee from the Graduate Office. The student will be informed of his/her committee membership as soon as the committee is assigned. The examining committee should be given a brief technical paper before the presentation. The paper should be a summary of the work described in the oral presentation, be in standard IEEE Transactions format, and is limited to three double-column single-spaced pages, including figures and references.

Once the Graduate Committee has assigned the examining committee, it is the student’s responsibility to schedule the examination with the committee members, arrange a room for the examination, and notify the ECE Graduate Office. The examining committee will inform the student and his/her research advisor, in writing, of the outcome within 72 hours after the qualifying examination, and submit to the Graduate Office the PhD Examination Report and the Assessment form found at the SEAS website. The result will be a clear-cut pass or fail; no remedial work will be allowed to alter the outcome. A student who fails the qualifying exam on the first try may retake it during the following semester/summer. At least one faculty member from the first examining committee will serve on the second examining committee. A student who fails the examination twice will lose support and must leave the program at the end of that semester.
Doctoral Dissertation Proposal

1) After a student has been admitted to Ph.D. study, the student should work with his/her advisor and define a dissertation topic. A dissertation proposal based on this topic must be submitted to the student’s advisory committee in advance and a public oral presentation of the proposal be made within two semesters following successful completion of the Ph.D. Qualifying Examination, and at least one semester prior to graduation.

2) The Proposal document submitted to the examining committee should be limited to 25 pages including figures. Supplemental information should be placed in appendices to the proposal.

3) Obtain an example announcement format online or from the ECE Graduate Office. Announce the presentation of the proposal by mailing the announcement to eeall@virginia.edu.

4) The proposal presentation should be limited to 45 minutes and will be followed by questions from the audience and the examining committee. Successful completion of the dissertation proposal examination will result in your being admitted to candidacy for the degree. You must complete at least one semester as a candidate before the degree is awarded.

5) Publications and presentation of scholarly work is an expected part of any graduate level research program. At a minimum, all Ph.D. candidates are required to submit an article related to their research to a refereed journal, prior to completing their dissertation defense. If the student’s advisor is not a co-author of the paper, the advisor must provide the graduate committee with a note indicating the advisor’s approval of the paper. (Please supply the ECE Graduate Office with a copy for your file).

Dissertation Defense

1) Apply for doctoral degree by entering intended graduation in SIS. Observe the due dates. For ME, MCS, MEP and MMSE degrees: http://seas.virginia.edu/advising/graduation_procedure_ME.php
   For MS and PhD degrees:  http://seas.virginia.edu/advising/graduation_procedure_MS_PhD.php

2) A public oral defense is required by the department after the student has completed his/her dissertation to the satisfaction of his/her advisor. The Final Dissertation Examining Committee must include a minimum of 3 SEAS faculty, a minimum of 4 U.Va. faculty, and a minimum of 5 total members. One of the U.Va. faculty members must be from outside the student’s home department. The purpose of the member from outside of the student’s home department is to ensure consistency across the University, to help ensure fairness to the student and to prevent conflict inside the department. The outside member must be UVA faculty. Students must furnish biographies for non-tenure track faculty members (outside of SEAS) and industry professionals to include the highest degree attained, the year and institution, and any relevant experience or research which would provide expertise needed for sitting on the committee.
3) Prepare the dissertation for distribution and reserve room. The completed dissertation must be delivered to each member of the examining committee at least 14 days prior to the defense.

Announce the final examination of the dissertation using the standard format. Obtain an example announcement format from the ECE Graduate Office. Send electronic version of your announcement to yvw3d@virginia.edu.

5) Conduct doctoral dissertation final examination as scheduled. The format of the oral defense is a presentation by the student followed by a question and answer period when all participating people (including the committee members and other students and faculty members) are present. The student presentation portion of the defense should not exceed 45 minutes.

6) Submit Report on Final Examination and Thesis and Dissertation Assessment form and (PhD only) a certificate of completion of the on-line Survey of Earned Doctorates found at: https://sed.norc.org/showRegister.do to the Graduate Office.

The report on Dissertation Final Examination and accompanying assessment form 7 days before scheduled examination date bring form partially completed by the candidate to the ECE Graduate Office. Please refer to the Graduation Procedures at the SEAS Graduate Dean’s office Website. Consult the Office of the Associate Dean for Graduate Studies in Thornton Hall, Room A108, for submission deadlines for graduation within the current semester.

Graduate Student Review

The EE department will conduct an annual review of all graduate students pursuing a MS, ME or PhD degree. Specific goals of this review include:

- Promoting a culture of excellence and continuous improvement in the research being conducted in the ECE Department
- Providing feedback to give students an assessment of their current progress toward their degree
- Providing feedback with specific suggestions for improving performance if needed
- Providing a forum for students to discuss their questions or concerns with several faculty

This review can take one of two forms depending on the degree being pursued and the progress that has been made to date.

For students pursuing a MS degree, an ME degree, or a PhD degree who have not formed their PhD advisory committee, the annual review will consist of a written annual report from the student that outlines academic and research performance. This report is due in early March of each year. Feedback will be provided by early June.

For students pursuing a PhD and have formed their PhD Advisory Committee, the annual review will consist of a face-to-face meeting with at least three (3) of the student’s PhD Advisory Committee members during either March or April. The student’s PhD Advisory Committee will decide the format and
requirements for this review meeting. Each student will receive written feedback from their PhD Advisory committee not later than two weeks after the meeting takes place.

All submission to this review will take place through a COLLAB site set-up for this purpose. Failure to complete these reviews will result in a registration bar being placed on the students until the review has been completed.

**Other Graduate Course Regulations**

**English Language Proficiency**

All new graduate students whose native language is not English are tested for English proficiency near the beginning of their first semester at UVa. All non-native speakers of English take the Virginia Language Proficiency Exam (administered by the Center for American English Language and Culture) at this time. Students, in the EE Department, who began their graduate studies during or after fall 2002, and who are non-native speakers of English, must also pass the SPEAK Test administered at UVA by CAELC. Students must pass this test before:

i. requesting a Ph.D. Qualifying Examination.
ii. being appointed to a Graduate Teaching Assistant position (ECE 8897, 9897).
iii. commencing a doctoral-program Graduate Teaching Experience (ECE 6996).
iv. applying for a graduate degree.

If a pass grade is not achieved on the SPEAK test, CAELC offers a program of courses of instruction in preparation for a repeat test at a later date. If a student takes the SPEAK Test in the fall, portions of the Virginia Language Proficiency Exam and the SPEAK Test are merged into a single composite exam.

**Independent Study (ECE 6993, 7993)**

Any student planning to study graduate course material on an independent basis under the supervision of a faculty member must submit a syllabus for ECE 6993 or ECE 7993 to the ECE Graduate Office. This syllabus may be in the form of a beginning-of-course memo and must be submitted no later than the beginning of the semester in which the student registers for Independent Study. The syllabus must include textbooks and references to be used during the study as well as a detailed outline of topics to be covered. Samples of problems solved and/or copies of any reports written during the course must be provided for the student's file along with the syllabus. All Independent Study courses must be completed within the period of the normal semester, unless extenuating circumstances prevent the student from completing the work. No more than one Independent Study course (3 credits) may be applied towards an M.S. or M.E. degree.

**Master’s Project (ECE 6995, 7995)**

Subject to the approval of his/her advisor, an M.E. student may include three to six hours of project work
in their degree program. MS and Ph.D students cannot use 6995 or 7995 to fulfill degree course requirements. A project proposal must be submitted to the student’s advisor. When the project has been completed, a copy of the project report must be supplied to the ECE Graduate Office for inclusion in your academic file.

**Electrical and Computer Engineering Seminar (ECE 6505)**

This one-hour weekly seminar course features presentations given by ECE faculty members, to introduce various research areas, topics, and advances in Electrical and Computer Engineering. It is a one-credit course required for all first-year ECE graduate (ME, MS and Ph.D.) students. This course is offered only the Fall semester.

**Supervised Graduate Teaching Experience (ECE 6996)**

Ph.D. students in the ECE Department must pass one semester of a guided teaching experience. The department will issue a list of possible teaching opportunities for each semester and students may apply for one of these positions. The ECE Graduate Office will select the faculty supervisor for each student in this course. The graduate student will be evaluated by the faculty supervisor and assigned a pass/fail grade as appropriate. As with all graduate-teaching positions at UVa the student must have passed the SPEAK Test in order to fulfill this graduation requirement. Students should apply to the ECE Graduate Office at least 10 days before classes begin. They will be assigned a course to assist and the student should contact the instructor of the course to get permission to register for ECE 6996 – Supervised Graduate Teaching Experience.

It is the faculty’s belief that this experience is valuable for the professional development of our Ph.D. students. In addition, the department and its undergraduates benefit from additional teaching support. It is expected that such an assignment will require about ten hours per week and may be a combination of laboratory support, office hours for tutoring, grading assistance, or a combination.

**Note:** This requirement may not be met by serving as a TA (ECE 8897/ECE 9897) in the department. No additional compensation is provided for this one-time experience.

**Financial Support**

Financial support may be provided by the department in the form of a Fellowship, Graduate Teaching Assistantship (GTA) or Graduate Research Assistantship (GRA). The student should consider such support an honor and make every effort to meet the requirements specified for such support. Financial aid may be terminated at any time if the department or the project supervisor feels the student is not performing to the professional standards expected of a graduate engineer.

A student receiving a department fellowship will typically be required to provide some type of service for this financial assistance. This service may include such jobs as helping a faculty member develop a new research area or working as a graduate teaching assistant. The student should meet with the faculty
member and report progress on a regular basis. Fellowships are generally given to supplement GRA and GTA awards. Fellowships are usually paid monthly in eight equal installments during the academic year.

Graduate teaching assistants are assigned to specific laboratory courses and are expected to prepare adequately before each laboratory meeting. Some preliminary preparation may be required before the beginning of the semester. At the end of the semester, the GTA should check with the faculty member in charge of the laboratory to make sure that all duties have been completed. The member of faculty responsible for the course will issue detailed instructions for GTAs. Generally, first year international students are not eligible for a GTA position, unless they pass the English Proficiency Test and SPEAK Test.

Graduate Research Assistantship support is provided for assistance on sponsored research contracts or grants. This work not only aids the research project but may also provide a topic for the student’s thesis or dissertation. The student is expected to complete the work specified by the project supervisor in a professional engineering manner. The project supervisor and the student should discuss what is to be expected from the student during the employment period and the student should expect to make a progress report (verbal or written) every week. Master’s students receiving financial assistance will normally be required to be enrolled in the M.S. (thesis) program. This is particularly true for students receiving a GRA.

Financial aid is not automatically renewable from one year to the next. It is the student’s responsibility to make arrangements with the project supervisor of his/her research regarding the possibility of continued employment for the next academic year. Students interested in a GTA position should contact the ECE Graduate Office.

All students receiving financial assistance are responsible for providing withholding tax information and Social Security Card to the Payroll Office and completing Federal Employment Eligibility Form I9. Please report to the Budget Office for the School of Engineering and Applied Science in Room A205, Thornton Hall. Failure to do so will preclude being placed on payroll. All male students must complete the Selective Service Form: this form is required by the Commonwealth of Virginia and your employment will be terminated if it is not completed on time.

**Miscellaneous**

The following policies have been established concerning the use of equipment, supplies, and materials.

**Keys**

Keys to the building and to the student offices are available from the ECE Office in Room C215.

**Offices**

Offices will normally be assigned by the EE Main Office, C215 Thornton Hall. The office must be kept neat and clean as we often show visitors through the department. Do not use scotch tape on the walls as it will damage the wallboard when removed. Remember that someone else will occupy your office after you
leave, so try to keep it nice. Office space is extremely limited, and can normally only be provided to those with research or teaching assistantships.

**Telephones/Fax Machine**

Telephones are provided in some graduate student office areas. Necessary research related long distance calls are made with a forced authorization code (FAC). The FAC number allows the cost of the call to be directly charged to the research contract. FAC numbers may be obtained from the faculty investigator of the research project. University policy prohibits personal long distance calls to be made at University expense. Personal long distance calls must be made “collect”, or by credit card, or charged to your home telephone number. A fax machine is located in the department mailroom in C222. Proper usage of the fax machine is dictated by the same policies that apply for telephones.

**Office/Lab Supplies**

You should contact the faculty investigator of your project regarding research supplies.

**Copy Machines**

The photocopy machine can only be used with the proper copy card. The department copy card is for specific teaching assignments and departmental business only. Each research investigator typically has his/her own copy card. The copy form login sheet located on the counter top in the main ECE office is only used for departmental copying and **not for laboratory or research copying**. The photocopy machine is available from 9am-5pm Monday through Friday only.

**Email, Word Processing & Computing Facilities**

The Division of Information Technology and Communication (ITC) provides general purpose computing resources for the University of Virginia. Please obtain an account (http://its.virginia.edu/home.php) promptly and read your mail daily, as these will be primary methods by which the department will communicate important information to you.

*If you wish to send email to all ECE graduate students, address your message to eegrads@virginia.edu*

**Travel**

Your advisor can advise and assist you concerning research or Department-related travel. Reimbursements for travel expenses are done online at http://www.virginia.edu/~travel.

**Address Changes**

Please update SIS, of any changes in your address or telephone number. It is important that we have an address at which you can be reached during the holidays and summer as well as the academic year. **If you are graduating, please leave a forwarding home or business address.**
Building Use and Security

We need your help and cooperation in deterring would-be thieves! Please observe the following procedures:

- Keep your office door locked whenever it is unoccupied.
- Teaching assistants must not leave until all students have left the laboratory and must then secure all doors and windows.
- If you see someone carrying equipment from the building on nights or weekends, call the University Police (dial 911) and notify the department Chair or Graduate Director.

***Personal belongings are not covered under the University Insurance Policies. Check your home policy to see if you are covered.

Conference Rooms

Conference rooms are available for oral and written exams, research meetings, and other course or research functions. The department conference rooms C310 and C311 can be reserved through the ECE Graduate Office located in C216.

Office Space

You will be assigned a shared office, either by your research group or by the department. It is important that you follow some guidelines in the use of this space. Don’t change offices without contacting the EE Office first; don’t move furniture in or out of your office; and remember to be considerate of the other students with whom you share the room.