

5. DEGREE PROGRAMS

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5.1 Graduate Division

As the administrative arm of the Graduate Council, the Graduate Division monitors the progress of almost 9,800 students enrolled in over 100 different graduate degree programs, from the time they are admitted to Berkeley until they complete their degrees. The individual units of Graduate Division include:

- Office of the Dean
- Graduate Academic Services
- Graduate Admissions
- Graduate Appointments
- Graduate Communications & Events
- Graduate Degrees
- Graduate Development Office
- Graduate Diversity Program Office of Outreach and Retention
- Graduate Fellowships
- Graduate Student Instructor (GSI) Teaching and Resource Center

5.1.1 The Guide to Graduate Policy

The Graduate Division's [Guide to Graduate Policy](#)¹ is the primary source of rules and regulations relating to graduate degrees and programs in the Department of Electrical Engineering and Computer Sciences. The EECS Graduate Student Handbook includes rules and regulations that augment the Graduate Division policies. All graduate advisors and graduate students should refer to the Graduate Division's Guide to Graduate Policy when necessary.

5.2 Master of Science (M.S.)

There are 2 types of M.S. degrees EECS students can be awarded:

- **Master of Science in Engineering (EECS)**—normally for EE students with a B.S. degree in engineering
- **Master of Science in Computer Science**—normally for CS students with a B.S. in computer science

The M.S. degree requires either a thesis (Plan I) or a project report (Plan II); the 2 alternatives are very similar.

5.2.1 Coursework

M.S. students must complete **a total of at least 24 units** of coursework (**not including 298, 301, or 602 units**²), approved by their Research Advisor and within the following guidelines:

- At least 10 units must be graduate (200 series) EE and/or CS courses, not including EE or CS 298s or 299s.
- Under Plan I, between 4 and 10 units of independent research (299), taken in conjunction with the writing of a thesis, are included as part of the 24 total units.
- Under Plan II, between 3 and 6 units of 299 (in either EE or CS, depending on your area), leading to an approved project report, are included.

The remainder of the coursework may include upper division undergraduate (ten0-series) courses, provided they are more advanced than those required for EECS undergraduates and do not duplicate courses already taken.

¹ <http://www.grad.berkeley.edu/policies/guide.shtml>

² Please see Section 6 For more information.

5.2.2 Grades

All courses, except for 299s, must be taken for a letter grade. 299s should be taken with the S/U grade option. Your overall GPA must be at least 3.0 (computed for all 100 and 200 level courses taken up to the time that the M.S. is awarded). Courses with a “C” grade may be balanced with “A” or “B” grades. No credit toward the M.S. degree is given for grades “D+” or below.

Grades of “I” (Incomplete), “NR” (No Report), or “F” must be cleared or explained before you are advanced to candidacy or allowed to receive your degree.

5.2.3 Academic Residency³

You must be in academic residence for at least 2 semesters before you can apply for California Residency. In order for a semester to count for academic residence, you must enroll for at least 4 units of 100 or 200 level courses. (These 4 units do not necessarily satisfy the requirements for full-time study.) The Department expects M.S. candidates to finish in 3 semesters unless they are continuing for the Ph.D.

5.2.4 Advancement to M.S. Candidacy

Fill out the Application for [Advancement to Candidacy](#)⁴ after you have completed at least half of the required coursework, and **no later than the 5th week of instruction in the semester you wish to graduate.** (If you plan to finish in the summer, you should apply the previous January.)

The application requires you to list all courses, with units and grades (if completed) that you would like to use to satisfy the M.S. coursework requirements. Coursework listed on your Advancement form may not be more than 5 years old. Have your advisor sign the application and then submit it to the Graduate Office for the Vice Chair's approval. Thereafter, you must inform the Graduate Office of any changes in the course list.

5.2.5 Transfer of Credit

You are allowed to transfer a maximum of 4 semester units or 6 quarter units of credit earned while you were in graduate standing at another institution, provided:

1. The credit was not applied toward satisfying the requirements of a previously conferred degree
2. The credit was earned for coursework normally offered within your current program of study, and
3. The credit will not be used to reduce the minimum requirement for 200-level courses.

Petitions are considered on an individual basis and should be completed before applying for candidacy. They will be granted only for students with high achievement (i.e., a GPA of at least 3.3 at both Berkeley and the original institution). If you were a UC Berkeley undergraduate and you took a graduate course for a grade during your final semester which did not count toward your undergraduate degree, you may be able to transfer this course towards your M.S. program. Consult your Graduate Assistant for details about this “backdating graduate standing” process and for the proper petition form.

³ Please refer section F1.3 of the Guide to Graduate Policy: <http://www.grad.berkeley.edu/policies/ggp/ggp.pdf> (page 58)

⁴ <http://www.grad.berkeley.edu/policies/forms.shtml>

5.2.6 Thesis or Project Report

You must be either registered or on Filing Fee the semester you submit your thesis or project report.

In the EECS Department, Plan II's Project Report replaces the "Comprehensive Examination" referred to in university documents and forms. Likewise, there is no examination for Plan I.

PLAN I

The thesis must be approved by the Research Advisor and 2 other members of the Berkeley Academic Senate (regular, Berkeley faculty). The 3-member committee, in turn, must be approved by Graduate Division through application for Advancement to Candidacy. It is recommended that at least one member of the committee be from another department.

You need to submit a total of 4 (4) copies of your thesis:

1. The original, with the signed title page, and one additional copy of the complete manuscript and title page on acceptable paper to Graduate Division, 318 Sproul Hall. You should refer to Graduate Division's Guidelines for Submitting a Dissertation or Thesis for the detailed specifications.
2. An unbound copy including the title page, signed approval page, and abstract, to the EECS Graduate Office.
3. A copy to your advisor

PLAN II

A written report of a project must be approved by your EECS Research Advisor and by a 2nd reader who is also a member of the regular, Berkeley faculty. Exceptions for non-Berkeley faculty must be approved by petition.

You must submit one (1) original copy of the report, with the original signed title page, to the EECS Graduate Office. No special formatting is required. Photographs and drawings in the original copy of your thesis or report must be originals, not photocopies. Your work will be filed in the [Kresge Engineering Library](#)⁵ in Bechtel.

You must also provide your advisor with a copy of your report.

5.2.7 EECS Department Exit Survey

If you are not continuing beyond the M.S. degree, you must complete the online [Exit Survey](#)⁶ (this is a departmental requirement). There is also an optional [EECS Quality-of-Life Questionnaire](#)⁷ that we encourage all students to complete.

⁵ <http://www.lib.berkeley.edu/ENGI/>

⁶ <http://www.eecs.berkeley.edu/GradAffairs/exitgrad.html>

⁷ <http://www.eecs.berkeley.edu/Students/Grad/Affairs/GradQuality.html>

5.2.8 Certificate of Completion

Once you have completed your report and before the degree is officially conferred, you may obtain a certificate of completion of degree requirements from the Graduate Degrees Office. Request for Certificate of Completion form can be found at http://www.grad.berkeley.edu/policies/pdf/certificate_completion.pdf.

5.2.9 Diplomas

Degrees are posted to transcripts approximately 3 months after the conferral date. Diplomas are available approximately 1 month after that. For more information, see the Registrar's sites below:

Transcripts: <http://registrar.berkeley.edu/Records/transcripts.html>

Diplomas: <http://registrar.berkeley.edu/Records/diplomas.html>

5.2.10 Degree Checklist

- | |
|--|
| <ul style="list-style-type: none"><input checked="" type="checkbox"/> Found a Research Advisor?<input checked="" type="checkbox"/> Completed 24+ units of coursework?<input checked="" type="checkbox"/> Obtained academic residency?<input checked="" type="checkbox"/> Advanced to M.S. Candidacy?<input checked="" type="checkbox"/> Filed your Plan I with Graduate Division or Plan II with the Graduate Office?<input checked="" type="checkbox"/> Completed the EECS Exit Survey (if M.S. is your final degree)? |
|--|

You should check to make sure that you receive grades for all required courses. Missed deadlines or bureaucratic snafus may lead to a delay in receiving your degree.

5.3 Doctor of Philosophy (Ph.D.)

The EECS Department offers 3 types of Ph.D. degrees awarded to students under the same conditions as the corresponding M.S. degrees (see Master of Science degree programs):

- **Doctor of Philosophy in Engineering - EECS**
- **Doctor of Philosophy in Computer Science**

The principal requirements for the Ph.D. are:

1. Coursework (a major field and 2 minor fields)
2. Departmental Preliminary Requirement (oral examination and breadth courses)
3. Division Specific Requirements
4. The Dissertation

There is no foreign language requirement.

5.3.1 Normative Time

Normative Time is the elapsed time, calculated to the nearest semester, which students would need to complete all requirements for the doctorate, assuming that they are engaged in full-time study and making adequate progress toward their degrees. Normative Times for doctoral programs have been recommended by department faculty and approved by the Graduate Council and the UC Systemwide Coordinating Committee on Graduate Affairs. The Normative Time for the EECS department is 10 semesters.

5.3.2 Ph.D. Coursework

The Faculty of the College of Engineering recommends a minimum number of courses taken while in graduate standing. Depending on when you enter the EECS graduate program, this equates to a total minimum of **24 or 32 units** of coursework, taken for a letter grade and **not including 298, 299, 301, and 602 units**. At the discretion of the Vice Chair, credit may be given for some units taken at a comparable institution. Please see the Transfer Credit section for more information.

Graduate courses used for the Berkeley M.S. degree may be included as part of Ph.D. coursework.

The EECS Department requires that a student establish a major subject area and 2 minor subject areas.

If you entered Fall 2009 or later, you must meet the following minimum course requirements:

Major (all grad (200 level) courses)	12+ units	3.5+ GPA
Inside Minor (at least 1 grad (200 level) course)	6+ units	3.0+ GPA
Outside Minor (at least 1 grad (200 level) course)	6+ units	3.0+ GPA

If you entered **prior to Fall 2009**, you have the option of meeting the above minimum course requirements **combined with** 30 hours of GSI (at least 20 hrs. for undergrad courses) or meeting the following minimum course requirements **combined with** 20 hours of GSI (at least 10 hrs. for undergrad courses):

Major (all grad (200 level) courses)	16+ units	3.5+ GPA
Inside Minor (at least 2 grad (200 level) course)	8+ units	3.0+ GPA
Outside Minor (at least 2 grad (200 level) course)	8+ units	3.0+ GPA

Major Subject Area: A coherent program of graduate courses (200 level) or the equivalent, with a GPA of 3.5 or better, as approved by your Research Advisor, will satisfy the major requirement. Most students take considerably more than the minimum units in the major area.

Minor Subject Areas: The minor subject areas requirement is typically met by taking 2 courses in a given area. At least one of the courses must be a graduate (200 level) course.

The minor for your Ph.D. should provide “broad support for the technical goals of your proposed dissertation research.” There are 2 issues which you should consider when you are choosing specific courses for the minor:

- adequate technical content in the minor, and
- adequate breadth provided by the minor, as distinct from the major area.

Ph.D. candidates, with the approval of their advisor, must choose courses for each of their minor subjects which meet the following criteria:

1. Each minor program must have an orientation different from the major program, and the courses involved should contain concepts not present in the major program.
2. At least one minor program must consist mainly of courses from outside the EECS Department.
3. The minor program must have depth (meaning 1 graduate course for a 6-unit minor or 2 graduate courses for an 8 unit minor should be included). The more removed the outside minor program is from the content of the EECS major program, the fewer the number of graduate-level courses which may be required (as in the case of a biology minor for a computer hardware major program).
4. At least one of the courses used for the outside minor must be a graduate-level course that is not cross-listed with EECS and is not on the list of restricted courses for that minor. (See list below.)
5. The minor programs should provide broad support for the technical goals of the proposed dissertation research.

These criteria attempt to define minors not by departments but by a selection of courses, which constitute a body of knowledge and include courses from several different departments. For example, a student in computer hardware who wishes to have a minor in statistics and stochastic processes could include courses from the Statistics Department, as well as EE 226A. In general, one member in the Qualifying Examination Committee will represent each of the minors.

There are cases where the technical overlap between EECS courses and courses in other departments is so great that the latter should be listed as part of the major, rather than as a minor, since they add so little breadth to your program. Examples of this sort of overlap would be Electromagnetics students in EECS taking certain EM courses in Physics or CS Theory students taking some of the theory courses in IEOR. These complications make it essential for students to fill out their Blue Card in the Graduate Office as soon as they have passed the preliminary requirement.

Suitably chosen sequences in subjects that support the students professional goals may be used to satisfy the EECS course requirement for a minor. In proposing a set of courses for any minor to the Vice Chair of Graduate Matters for approval, the student should provide descriptions of the course material if not readily available. The student should maintain a minimum GPA of 3.0 in minor fields. In the event of a disagreement, the student may appeal to the EECS Graduate Study Committee by submitting a written petition to the Graduate Office.

Statistics (outside) minor:

Please be advised that a minor consisting solely of Stat 200A and Stat 243 is not considered acceptable. Students in areas of EECS with a strong background in probability such as CS theory or EE systems are recommended to take 2 graduate courses **other than** Stat 200A and 243, as they may find these courses insufficiently advanced for their purposes.

Restricted courses for Statistics minor:

- STAT200A
- STAT243
- EE226A is not officially cross-listed but, due to course content, may be considered as cross-listed with Statistics.
- EE227A is not officially cross-listed but, due to course content, it may not be considered as cross-listed with Statistics.

The Teaching (outside) minor:

For those motivated to teach or interested in gaining an extra credential for future faculty positions, the CS Division is offering a teaching minor. For details, please see the CS Graduate Assistant.

Designated Emphasis:

Ph.D. students may choose to add a designated emphasis to their program. A designated emphasis is a specialization, such as a new method of inquiry or an important field of application, which is relevant to 2 or more existing doctoral degree programs. Designated emphases are available in: For more information, please see <http://www.eecs.berkeley.edu/GradAffairs/>.

5.3.3 Departmental Preliminary Requirement

The EECS Preliminary Requirement consists of 2 components: the oral examination and breadth courses. You will have fulfilled the Prelim Requirement only after you pass the exam and meet the breadth requirement. The Qualifying Examination may not be taken until the “pass” for the Preliminary Requirement is issued. **The oral exam serves an advisory role in a student's graduate studies program with official feedback from the exam committee of faculty members. Students must be able to demonstrate an integrated grasp of the exam area's body of knowledge in an unstructured framework.** The breadth courses ensure that students have an exposure to other areas outside of their concentration. It is expected that students achieve high academic standards in these courses.

As a reminder, the prelim oral exam is for students enrolled in the Ph.D. programs; students enrolled in the M.S.-only program are not permitted to sign up for the exam.

For both the EE and CS oral exams, **you must be registered for the semester the exam is taken, and you must have a minimum cumulative 3.5 GPA in courses taken at Berkeley while in graduate standing. Graded units of 299 and 298 are not included in the computation.** If the GPA on record in the EECS Graduate Office is below 3.5, you must submit a petition, including an explanation, supported by a memo from a faculty member about your research progress or extenuating circumstances. The petitions are judged on a case-by-case basis.

In some cases EE students may desire to take a CS exam or vice-versa. To be allowed to take the desired exam, the student must petition their home division. Once this is approved (you must submit the petition before the deadline for prelim applications), you are responsible for meeting the specific deadlines. You can contact the Grad Assistant for details.

All other specifics for the EE prelim and the CS prelim are different.

5.3.4 Tentative Program of Study (Blue Card)

After you have passed the Preliminary Requirement, you must submit a Tentative Program of Study, otherwise referred to as a Blue Card⁸, to the Graduate Office. This card outlines the courses that you plan to take to fulfill all the coursework requirements for the Ph.D. You will be free to make changes to your plan after filing this card, but once your advisor and the Vice Chair have signed it, you are assured that the courses you intend to take will be accepted as satisfying all of the requirements. This eliminates the possibility that you will discover, while preparing to take the qual exam, that you have to take another course.

⁸ The Blue Card can be found at: <http://www.eecs.berkeley.edu/GradAffairs/>.

5.3.5 Division-Specific Requirements

Electrical Engineering

EE Preliminary Oral Examination

The EE exam should be taken in the subject offering most related to your intended field of research. If there is any question about the appropriateness of the choice, you should consult your advisor. If the Graduate Office sees an apparent discrepancy between your choice of exam and your research area, you and your advisor will be asked for justification. Under certain circumstances, your advisor may require that the exam be retaken in a more appropriate area.

You may select an exam in any one of the following areas:

- Communications (Comm)
- Computer-Aided Design (CAD)
- Digital Signal Processing (DSP)
- Electromagnetics(EM)
- Integrated Circuits (IC)
- Linear Systems (LS)
- Optoelectronics and Photonics (Opto)
- Semiconductor Devices (SD)
- Semiconductor Processing (SP)

This list may continue to be revised; an updated list can be obtained from the EE Graduate Office in 205 Cory.

Structure and Syllabus

The scope of the exam, intended to be the equivalent of about one graduate course plus supporting undergraduate material, is defined by an examination syllabus which is available from the EE Graduate Office or on the [EE Prelims webpage](#)⁹. 3 faculty members meet with you for one hour, and each poses a series of questions in the field of the exam based on the syllabus. The graduate students' association often schedules review sessions. It is also useful to talk to students who have previously taken the exam.

Scheduling and Sign-up

The exam is offered the 2 work days prior to the beginning of instruction each semester. If this cannot be arranged, the 1st 2 days of the 1st week of classes are also acceptable. Under normal circumstances, EE students are allowed 2 attempts to pass the exam. Rare deviations are handled by petition.

If you are entering Berkeley's EECS graduate program without a master's degree, you must take the exam for the 1st time at the beginning of the 3rd semester of graduate study. If you have a master's degree when you enter the graduate program in this Department, you must take the exam at the beginning of your 2nd semester. In both cases, if you do not take the exam on schedule and do not have an approved petition to delay on file, you may not be allowed to take the exam. Also in both cases, if a repeat exam is necessary, it must be done at the next prelim offering.

⁹ <http://www.eecs.berkeley.edu/GradAffairs/EE/Prelims/>

If you think you are exceptionally well prepared, you may petition to take the exam a semester early with the approval of your advisor. If you wish to delay taking the exam, you must submit a petition prior to the sign-up for the scheduled offering appropriate for you, as discussed above. The petition must explain the circumstances behind your desire to delay and be supported by your advisor.

Students sign up late in the semester preceding the exam. The EE Graduate Office announces the sign-up dates by e-mail. Applications are submitted on-line via [MY EECS INFO](#)¹⁰. If you do not meet the 3.5 minimum GPA requirements, you will be notified and the petition procedure described above must be used. The intended set of examiners, date, and time for each student will be announced by the end of the preceding semester; however, a change in the composition of the examination committee may occur which is not an excuse to cancel a scheduled exam. Withdrawing from the exam once you have signed up requires you to submit a petition, at least 2 weeks before the exam, approved by your advisor and the prelim committee chair, explaining the extenuating circumstances (e.g. medical or family emergencies). Please be aware that research obligations, disillusionment of study groups, employment off campus, etc., are not legitimate reasons for withdrawing. If you sign up and then drop out of the exam within 2 weeks of the exam date, you will be considered to have failed that exam.

Scoring

The 3 examiners make a collective recommendation on whether you have passed or failed the oral portion of the prelim requirement. The examining committee awards a score in the range of 0–ten. The minimum passing score is 6.0. A review committee consisting of the chairs of each of the exam groups then evaluates examinees that score below 6.0. The committee considers the student's entire record, including exam scores and any letters of support, particularly from the student's research advisor. The Graduate Office staff will only solicit the support letters for 2nd-attempt students who receive failing scores. You will receive a letter confirming the results of your exam and stating any remaining requirements (e.g. breadth courses not completed).

Preliminary Breadth Courses

You must complete, with a grade of A- or better, a graduate or advanced undergraduate course of at least 3 units in 2 different areas in the EECS Department, outside of the area of the oral exam. These same rules apply for an EE student who takes a CS prelim oral exam. (For example, an EE student who takes a CS oral preliminary exam in Architecture must choose 2 breadth courses from areas other than Architecture and these areas must differ from each other.) Also, at least one of the 2 breadth courses must be satisfied while in graduate standing at Berkeley.

Depending upon your Preliminary Exam area, EE students MAY NOT use the following classes in fulfillment of the requirement:

Linear	128, 221A, 222, 223, 290N, and 290O
Comm.	120, 121, 123, 126, 224, 225ABD, 226AB, 228AB, 229, 290Q, 290S, and 290T
Digital Signal Process.	120, 123, 126, 225AB, 226, 290T, 290S, CS280
CAD	219ABC, 244, 290A, CS170, CS172, CS250
IC	105, 120, 140, 141, 142, 143, 145A, 240, 241, 242, 243, 244, 247, 290C
Semicon. Devices	130, 131, 140, 141, 142, 143, 230, 231, 243
Semicon. Process.	130, 143, 231, 243, 290H
Optoelectronics & Photonics	117, 118, 119, 232, 233, 236AB

¹⁰ <http://www.eecs.berkeley.edu/deptinfo/>

Electromagnetics	105, 117, 118, 119 210, 216, 217, 290E
Networking	122, 228AB, CS268, 226AB
Operating Systems	CS261, CS262AB, CS266, and CS269
Graphics	CS280, CS284, CS285, CS294-3
Artificial Intelligence	CS280, CS281AB, CS287, CS288, CS289
Architecture	CS250, CS252, CS254, CS257, CS258
HCI	CS160, CS260, CS294 (CSCW, Human-Centered Computing , or Assistive Technology)

Any EE290 or CS294 courses must be petitioned for use in fulfillment of the EE breadth requirement.

This list may change when Departmental course offerings are updated. See the EE Grad Office for any updates.

For courses taken at other schools, you may complete a [petition form](#)¹¹ available in the EE Grad Office and have it approved by the instructor of the equivalent course here at UC Berkeley. You must provide the instructor with as much information as possible so that he or she can make an informed evaluation. This form and accompanying information will then be sent to the Chair of the Prelim Committee for final approval.

Students must inform the EE Grad Office when they believe they have completed both classes in fulfillment of the prelim breadth requirement. A “pass” can then be issued—this is a necessary step for the student to progress toward the Qualifying Examination.

Computer Science

CS Preliminary Oral Examination

Subject

Students should choose to take the CS oral exam in the area closest to their major field of study in the Ph.D. program. Students who have been admitted to the Ph.D. program only take CS prelims. An M.S. only student must petition to add the Ph.D. before signing-up to take the exam.

Exams are given in the following research areas:

- Artificial Intelligence (AI)
- Architecture (AR)
- Computer-Aided Design (CAD)
- Database Management Systems (DB)
- Computer Graphics (GR)
- Human-Computer Interaction (HCI)
- Networking (NET)
- Numerical Methods (NM)
- Operating Systems (OS)
- Programming Languages (PL)
- Security (SEC)
- Theory (TH)

¹¹ <http://www.eecs.berkeley.edu/GradAffairs/CS/petition.general.pdf>

Structure and Syllabus

The research area prelim is a 50-minute oral exam given by 2 faculty members. In each area, the faculty team is responsible for designing, administering, and documenting the exam. The syllabus for each exam consists of a topic outline and recommended readings keyed to the test subjects. These syllabi are available on the [CS Prelim webpage](#)¹². Other resources that may help prepare you for the exam are practice sessions organized by the graduate student association and other students who have formerly taken the exam.

Scheduling and Sign-up

The oral exams are offered once per semester, sometime during the 3rd week of classes. Under special circumstances, an exam may be postponed to the following week with the approval and arrangement of the examiners. CS students are allowed to retake the exam as many times as necessary until they reach the deadline.

Students entering the Ph.D. program with only a bachelor's degree are expected to attempt the oral exam in their 3rd semester and complete **all** prelim requirements (including the breadth courses) by the end of their 4th semester. Those entering with a master's degree in CS must take the oral exam in their 2nd semester and complete all requirements during their 3rd semester. Any deviation from this timeline requires a timely petition¹³ to the Prelim Committee.

Students sign up for the exam late in the preceding semester. The CS Graduate Assistant will send an email announcing the sign-up dates by e-mail. Applications are submitted on-line via [MY EECS INFO](#)¹⁴. After the deadline, all applications will be reviewed and the examiners will be organized. Another email will inform you of your faculty examiners, and you will then need to contact them (if they have not contacted you before) during the 1st 2 weeks of instruction for a designated exam time slot. **Note that if you sign up for a time slot and do not show for the exam, you will automatically fail and be required to retake it the following semester.**

Scoring

The faculty members administer the exam, grade student performance and inform the students of their grades. The minimum passing score is 6.0 on a scale of 10. A pass is meant to indicate that the student would be welcome to do Ph.D. research with the examiners or their colleagues in the field of specialization.

Students who fail their exam, or who fail to pass all the requirements within the required time period, or who request an exception, are to petition the CS Prelim Exam Committee. The Committee considers the student's entire record, including exam scores and any letters of support, particularly from the student's Research Advisor (letters should be submitted to the Graduate Assistant). It is therefore extremely important that students involve themselves in research under some faculty member at the earliest possible opportunity, preferably by their 2nd semester. The Committee also considers compelling circumstances such as illness, or in the case of students switching to CS, those with very weak prerequisite backgrounds. The committee exercises wide discretion: it may decide that no action is necessary (if there are one or more semesters left in which to complete the requirements), that the student should be allowed more time in which to complete the requirements, that certain of the requirements should be waived, that certain remedial action should be taken, or that the student should be advised to leave the program.

¹² <http://www.eecs.berkeley.edu/GradAffairs/CS/Prelims/>

¹³ <http://www.eecs.berkeley.edu/GradAffairs/CS/petition.general.pdf>

¹⁴ <http://www.eecs.berkeley.edu/deptinfo/>

When students leave UC Berkeley and are subsequently readmitted to the Ph.D. program, the Prelim Committee on an individual basis determines the time by which they should complete the Prelims. Students who withdraw to avoid the Preliminary Exam should be aware that they might not be readmitted to the Ph.D. program.

Preliminary Breadth Courses

The CS breadth requirement consists of 3 courses, one course chosen from each of the list of courses below.

Systems	CS250, 252, 262A, or 262B
Theory	CS270, 271, 273, 276, or 278
Theory + Systems	CS263, 264, 265, 267, 280, 281A, or 289

5.3.6 Transfer of Credit

With the approval of your advisor and the Vice Chair, you may petition to transfer a maximum number of units of coursework (see options below) completed at other schools toward the course requirements for the Ph.D. In most cases, not more than one course would be accepted for the major field. Units used to complete a bachelor's degree will not be accepted. A Transfer of Credit petition¹⁵ is required for each course you intend to transfer. See the Graduate Assistant for details.

For students entering the EECS Ph.D. program in Fall 2009 or later, the maximum number of transferable units is 12 semester units or 18 quarter units.

For students entering the EECS Ph.D. program prior to Fall 2009, the maximum number of transferable units depends on the minimum number of units you are using to meet the department Ph.D. requirements.

- For students meeting a total minimum of 24 units for the Ph.D. program, the maximum transferable number of units is 12 semester units or 18 quarter units.
- For students meeting a total minimum of 32 units for the Ph.D. program, the maximum transferable number of units is 16 semester units or 24 quarter units.

5.3.7 Final Program of Study

Ideally by the end of your 6th semester, when you are ready to apply for the Qualifying Exam, you should complete the Final Program of Study, otherwise known as a White Card¹⁶, available in the Graduate Office (please note that students cannot advance to candidacy without a approved White Card on file) . The courses you list on the White Card need not be the same as those you listed on your Blue Card. However, the courses you do list are now considered to constitute your final program. Any changes you wish you make after having the card approved and signed by your advisor and the Vice Chair requires a petition.

5.3.8 Qualifying Examination and Thesis Proposal

The Qualifying Examination is an important checkpoint meant to show that you are on a promising research track toward the Ph.D. degree. It is a University examination, administered by the Graduate Council, with the specific purpose of demonstrating that “the student is clearly an expert in those areas of the discipline that have been specified for the examination, and that he or she can, in all likelihood, design and produce an acceptable dissertation.” Despite such rigid criteria, faculty examiners recognize that the level of expertise expected is that appropriate for a 3rd year graduate student who may be only in the early stages of a research project.

¹⁵ The Transfer of Credit Petition can be found at: <http://www.eecs.berkeley.edu/GradAffairs/>.

¹⁶ The White Card can be found at: <http://www.eecs.berkeley.edu/GradAffairs/>.

The department has recently reconstituted the Qualifying Exam process in order to get students through the process in a timeframe closer to that expected by the University, and to ensure that Ph.D. students get feedback from a group of faculty earlier in their research, when it can have the most impact.

In the past, the Qualifying Exam in EECS doubled as a Thesis Proposal. In the new system, students, in consultation with their advisors, are given the option of taking a single exam as before, or splitting the process in 2: a research area summary as a Qualifying Exam, followed (typically some semesters later) by a Thesis Proposal.

While our current Qual system is fairly new, the intent is that (as with the previous system) very few students should fail; with proper preparation, the examination should not be overly stressful. Rather, it is an opportunity for you to get feedback and constructive criticism on your research ideas from 4 professors at a time when such criticism can potentially help your research.

Qual Deadlines

For students entering Fall 2003 or later, the Qualifying Examination must be taken within 6 semesters of starting the program, and if the Qual is not a Thesis Proposal, then a satisfactory Thesis Proposal should be presented by the end of 10 semesters. In some cases it may be necessary to delay this strict deadline depending on the format of the exam (please see the Qual Format section for more details). Significant delays, however, will be brought to the attention of the research advisor and to the faculty at large at the EE and CS Student Review meetings. The exam is meant to demonstrate readiness to do research; it is not intended as a defense of an all-but-completed dissertation.

Qual Eligibility

Since the Qualifying Exam is a University requirement, it can be taken only with the approval of, and at a time approved by, the Graduate Division. Eligibility requirements for taking the exam are as follows:

- You must be registered the semester in which the exam is taken (an exam may be taken during the summer or winter breaks IF the student paid fees for the semester immediately preceding the exam or intends to pay fees for the semester immediately following the exam).
- You must have completed at least one semester of academic residence at Berkeley.
- You must have passed the Preliminary oral exam and met the breadth course requirements.
- You must have a GPA of at least 3.5 in your major subject area, at least 3.0 in each of your minor areas (298 and 299 not included), and have no more than 2 “Incomplete” grades.

Qual Committee

In consultation with your research advisor, you should choose an appropriate examination committee. Your committee must consist of 4 members, all regular faculty members at Berkeley. Your advisor is normally a member of the committee but cannot be its chair. Another committee member must be from outside the EECS Department, representing some area of expertise relevant to your research area, and usually from one of the areas declared as the outside minor in your Ph.D. program. All members of the Quals Committee must be able to examine the student on at least one of the 3 subjects of the examination. The outside minor need not be one of the 3 subject areas.

Qual Format

Format for Students Who Began the Program Fall 2003 or Later

Qual may be in format A or B below, at the choice of the examinee, after consultation with his/her advisor.

Format A

- Prepare a write-up and presentation summarizing a specific research area, preferably the one in which you intend to do your dissertation work. Your summary should survey that area and describe open and interesting research problems.
- Describe why you chose these problems and indicate what direction your research may take in the future.
- Prepare to display expertise on both the topic presented, and on any related material that the committee thinks is relevant.
- The student should talk (at least briefly) about any research progress to date (e.g. MS project, Ph.D. research, class project etc.) Some evidence of the ability to do research is expected.
- The committee shall evaluate the student on the basis of his/her comprehension of the fundamental facts and principles that apply within the student's research area, and his/her ability to think incisively and critically about the theoretical and practical aspects of this field.
- The student must demonstrate sufficient command of the content and the ability to design and produce an acceptable dissertation.

Format B

This option includes the presentation and defense of a thesis proposal in addition to the requirements of option A. It will include a summary of research to date and plans for future work (or at least the next stage thereof). The committee shall not only evaluate the student's thesis proposal and his/her progress to date, but shall also evaluate according to option A. As in option A, the student should prepare a single document and presentation, but in this case additional emphasis must be placed on research completed to date, and plans for the remainder of the dissertation research.

Thesis Proposal Defense

Any student not presenting a satisfactory thesis proposal defense, either because s/he took option A for the Qual, or because the material presented in an option B exam was not deemed a satisfactory proposal defense (although it may have sufficed to pass the Qual), must write up and present a thesis proposal which should include a summary of the research to date and plans for the remainder of the dissertation research. S/he should be prepared to discuss background and related areas but the focus of the proposal should be on the progress made so far, and detailed plans for completing the thesis. The standard for continuing on with Ph.D. research is that the proposal has sufficient merit to lead to a satisfactory Ph.D. dissertation. Another purpose of this presentation is to provide feedback on the quality of work to date. For this step, the committee should consist of at least 3 members from EECS familiar with the research area, preferably including those on the dissertation committee.

The [Departmental Thesis Proposal Application](#) can be found online¹⁷.

Qual Application & Scheduling

On the [Graduate Division Qualifying Exam Application](#)¹⁸ (also available in the Grad Office) and the [Departmental Qualifying Exam Application](#)¹⁹, indicate the names of the proposed examination committee members, as well as the date, time, and location of the examination. (It is your responsibility to find a date and time at which all the members of your exam committee are available.) The applications must be approved by

¹⁷ <http://www.eecs.berkeley.edu/GradAffairs/DeptThesisProposalApp.pdf>

¹⁸ http://www.grad.berkeley.edu/policies/pdf/qe_application.pdf

¹⁹ <http://www.eecs.berkeley.edu/GradAffairs/QualApplication.pdf>

your advisor and submitted to the Graduate Office **at least one month before** the proposed date of the exam. Once again, students should take the exam before the end of the 6th semester of graduate study.

The Vice Chair reviews and signs the applications which will then be sent to Graduate Division. Graduate Division then officially appoints the exam committee and approves admission to the exam. Students must not take the qual exam without prior receipt of an approval notice from Graduate Division. One week before the exam date, the Graduate Office sends a reminder about the exam to each member of the committee, so be sure to keep your Graduate Assistant updated about any change of time, location, etc.

If a student wishes to change the membership of the exam committee after the application has been approved by Graduate Division, the committee must be “reconstituted” by petition. The petition, signed by your advisor, must be submitted to the Graduate Office for department approval and forwarding to Graduate Division. See the Graduate Assistant for the [Request for Change in Higher Degree Committee petition form](#)²⁰ or download it from the web.

Meeting with the Qual Chair

Since research areas differ, the format of the exam may vary somewhat. **It is most important to meet with the Chair of the examination committee well in advance of the exam to be sure of a common understanding of the structure and format.** Additionally, you will prepare a written research proposal or short summary of research area according to the exam chair’s direction. Distribute the proposal to the committee in advance of the exam. In some cases, the committee may request a 2nd proposal. Occasionally, one or more of the committee members may give some feedback prior to the exam, but the aim of the written proposal/summary is to provide appropriate background so that the discussion during the exam can move more quickly.

Qual Structure

- The exam begins with a formal presentation of a summary of your research area or a research proposal, typically following the write-up submitted to the committee in advance of the exam. In planning the length of the presentation, you should think in terms of a 45 minute seminar if there were no interruptions.
- The committee will listen, interrupt, and ask questions. It is almost certain that not all committee members will be expert in all aspects of your research area, so you should give clear definitions and explanations, and be prepared to answer questions of a fundamental nature. Graduate division instructs the outside examiner that his/her responsibilities include ensuring “that the student’s mastery of the subject matter is both broad and comprehensive.”
- As the exam develops, the questions may range further from the specific topic of research, especially if the questions posed by the research do not appear to be interesting and challenging or if there appears to be gaps or misconceptions in your understanding of the issues. Any and all questions which address the fundamental purpose of the exam should be expected.
- Normally at the conclusion of the exam, you will be asked to leave the room while the committee discusses the result of the exam. You will be invited back once the committee has reached an agreement.

Tips and Suggestions for Qualifying Exams

The following tips on preparing for your qual are taken from the Graduate Division's publication *The Graduate:*

Studying for the Qualifying Exam

²⁰ <http://www.grad.berkeley.edu/policies/pdf/Recon.pdf>

- ***Find out about the format of the exam.*** Talk to students who have recently passed their exams, especially students with whom you have committee members in common. Ask about the format of their exams. Did the exam begin with a short summary of the student's academic career by either the chairperson or the candidate? If your department includes a talk as part of the exam, how long was it? Did the faculty members interrupt the talk with questions?
- ***Talk to your committee.*** Many students neglect this all-important resource, even though much of the intimidating mystery of the exam lies in what the faculty members will ask. Don't fly blind. Find out what you'll need to know for the exam. A suggestion: Prepare a brief outline of what you know about your 3 areas and take this with you when you talk to your committee members. Ask them what else you need to know. This outline will help you to organize your studying, and you can plug facts into this framework to illustrate your ideas. If the outline approach isn't appropriate, present a bibliography for a particular area to your committee and ask what other sources you should study. Ask which publications the professor would read to review a certain area quickly and effectively.
- ***Synthesize, not memorize.*** As you study, keep in mind that part of your task during the qualifying exam is to be convincing, as well as accurate, in your arguments. Professors want to see how you've organized your knowledge and how you can use facts to bolster your arguments. Many questions will have no "right" answer; intelligent, informed conjecture is acceptable in many cases.
- ***Begin studying early enough to permit rehearsal time.*** Be sure to give yourself time to practice. Most students report that practicing for the exam was extremely helpful. Besides giving you a chance to review what you know about the subject matter, a mock exam gives you the experience of answering questions before a group and makes you more confident in that setting. Often major advisors, as well as other students and postdocs are glad to give you a mock exam. If an oral presentation will be part of your exam, practice it several times. Use a blackboard if you plan to use it during the actual exam.
- ***Prepare for the occasional mistake.*** Imagining a perfect exam in which you know every answer and are consistently brilliant for 2 or 3 hours simply is not realistic. Instead, rehearse saying that you don't know and plan what you will say in case you draw a blank. You can gain time, for example, by saying, "Let me take some time to consider that question." Your committee will understand and wait for you to recover.
- ***Organize a mock examination administered by your fellow students.***

During the Exams

- ***If you are nervous, say so.*** Keep in mind that the committee members are instructed by the Graduate Division to "try to humanize an inherently difficult examination" and that the chair should "do all in his/her power to put the student at ease. "It's perfectly fine to say, "I'm a little nervous right now; I'll have to get myself organized." And it will give you time to think.
- ***Take control of your exam as much as possible.*** If you've talked to your committee and other students, you should have a good idea of what to expect. In some cases, you may be asked your preference about the order of topics. If you have prepared answers to questions you are fairly certain you will be asked, you will have well-organized responses with no unfortunate tangents that may lead to questions you can't answer.
- ***Take your time in answering questions.*** Listen to the questions and give yourself time to think about them. Although the silence can be unnerving while you think about an answer, rushing in with a disorganized response is worse.
- ***If you can't answer a question, say so.*** Don't pretend that you know the answer. Going off on a tangent is a transparent attempt to avoid the question. Most committees will simply re-state the question. Say you don't know.

- *If you can't answer a question or feel you have given a poor or incorrect answer, don't dwell on it.* Remember that no one expects you to know all the answers. Most likely, the very people who are examining you didn't know all the answers on their qualifying exams. (Twenty years later, one Berkeley professor remembers the exact wording of a question he couldn't answer on his exam.) Instead of worrying about a wrong answer, concentrate on the next question, the one you will field with confidence.

Antidotes to Anxiety

- If you're worried about failing the exam, fortify yourself with the knowledge that your chances of passing are excellent. Since 1975, only 6 percent of Berkeley students have failed their 1st qualifying exam.
- Recognize that your committee wants you to pass. These faculty members have a great interest in seeing you do well. They selected you for graduate study and trained you in courses. Most students report that their committee members were very cordial and gave them every opportunity to show what they knew during the exam. Often committee members would re-state questions of other committee members so that students would understand.
- Finally, believe it or not, 83% of Berkeley doctoral candidates consider the qualifying exam to be a beneficial experience, according to the Graduate Division exit questionnaire. It is a rite of passage that can build your confidence and affirm your readiness to take the next step in becoming a scholar.

5.3.9 Advancement to Candidacy

Obtain the [Application for Advancement to Candidacy for the Ph.D.](#)²¹ from the Graduate Office as soon as you pass your Qualifying Exam. The fee for Advancement to Candidacy is \$90. Please also note that students cannot advance to candidacy without an approved White Card²² on file.

Students must file the advancement form in the Graduate Office no later than the end of the semester following the one in which the Qualifying Exam was passed. In approving this application, Graduate Division approves your dissertation committee and will send you a Certificate of Candidacy. You would be eligible for a GSR pay increase by bringing this Certificate as proof of your passing the qual exam to the ERSO Payroll Office, 199M Cory Hall. (See the Reduction in Nonresident Tuition section.)

Additionally, as of September 1, 2005, a new requirement went into effect for students who plan to use **human subjects** in their research. Before such students can submit an Application for Candidacy, they must take the online [Collaborative IRB Training Initiative](#)²³ course and print out the Course Completion Record to be submitted with their candidacy application.

Candidacy forms submitted without the CITI Course Completion Record will be returned to the student and will not be processed. Delays in the advancement to candidacy limit the student's actual time as a candidate and may jeopardize his/her full eligibility for the Dean's Normative Time Fellowship, if in a qualified major.

²¹ <http://www.grad.berkeley.edu/policies/pdf/PlanB.pdf>

²² <http://www.eecs.berkeley.edu/GradAffairs/phdstuds.shtml#whitecard>

²³ <https://www.citiprogram.org/>

5.3.10 Academic Residency²⁴

You must be in academic residence for at least 4 semesters to qualify for a Ph.D. In order for a semester to count as academic residence, you must enroll for at least 4 units of 100+ or 200+ level courses. (These 4 units do not necessarily satisfy the requirements for full-time study.)

The College of Engineering requires 2 semesters of residence after the Qualifying Examination has been passed, before the Ph.D. can be granted. The 2 semesters may include the semester in which the Qualifying Examination is taken. Under exceptional circumstances, the requirement may be waived, with the concurrence of the student's advisor and the Vice Chairman.

5.3.11 Teaching Requirement

The Department requires all Ph.D. candidates to serve as a teaching assistant within EECS.

For students entering the EECS Ph.D. program in Fall 2009 or later, you must fulfill this requirement by working as a GSI (excluding EE or CS 301) for a total of 30 hours minimum prior to graduation. At least 20 of those hours must be for an EE or CS undergraduate course. (NOTE: 20 hours of work per week is equivalent to a 50% GSI appointment for a semester. 10 hours of work per week is equivalent to a 25% GSI appointment for a semester.) Students will typically be able to fulfill this requirement in two semesters.)

For students entering the EECS Ph.D. program prior to Fall 2009, the GSI requirement you must fulfill depends on the minimum number of units you are using to meet the department Ph.D. requirements.

- For students meeting a total minimum of 24 units of coursework for the Ph.D. program, the GSI requirement will be fulfilled by working as a GSI (excluding EE or CS 301) for a total of 30 hours. At least 20 of those hours must be for an EE or CS undergraduate course. (NOTE: 20 hours of work per week is equivalent to a 50% GSI appointment for a semester. 10 hours of work per week is equivalent to a 25% GSI appointment for a semester.) Students will typically be able to fulfill this requirement in two semesters.
- For students meeting a total minimum of 32 units of coursework for the Ph.D. program, the GSI requirement will be fulfilled by working as a GSI (excluding EE or CS 301) for a total of 20 hours. At least 10 of those hours must be for an EE or CS undergraduate course. (NOTE: 20 hours of work per week is equivalent to a 50% GSI appointment for a semester. 10 hours of work per week is equivalent to a 25% GSI appointment for a semester.) Students will typically be able to fulfill this requirement in one or two semesters.

Students who have passed the Preliminary Requirement and have not yet fulfilled the teaching requirement may be required to fill existing departmental teaching needs.

Exemptions from the teaching requirement will be granted only under exceptional circumstances. In order to obtain an exemption, the Research Advisor must propose to the Vice Chair an alternate form of service for the student IN ADVANCE (e.g., the redesign of laboratory exercises for an existing course).

5.3.12 The Dissertation

Filing your doctoral dissertation at the Graduate Division is one of the final steps leading to the award of your graduate degree. It is imperative that you carefully follow [Graduate Division's Instructions for Preparing and Filing Your Thesis or Dissertation](#)²⁵. Graduate Division strictly enforces rules about margin widths, page numbering, paper, etc., and the Graduate Degrees Office in Sproul Hall is the official source of all answers regarding any aspect of preparing your manuscript. You are REQUIRED to read the Instructions for Preparing and Filing Your Thesis or Dissertation. There's more to filing than just submitting your manuscript to the Graduate Division! Their instructions contain a *Checklist for Doctoral Students* that you'll want to print and

²⁴ Please refer section F2.5 of the Guide to Graduate Policy: <http://www.grad.berkeley.edu/policies/ggp/ggp.pdf> (page 63)

²⁵ <http://www.grad.berkeley.edu/policies/pdf/disguide.pdf>

follow. Also check Graduate Division's list of the [ten Most Common Mistakes When Filing a Dissertation or Thesis](#)²⁶. File as early in the semester as you can.

In addition to the manuscript you submit to the Graduate Division, you must also submit a complete copy, including a copy of the signed approval page and abstract, to the EECS Graduate Office. This copy will be delivered to the Bechtel Engineering Library for binding and shelving.

If you want a Certificate of Completion of the Ph.D., be sure to mention this to the Graduate Division when you file your dissertation. The [Request for Certificate of Completion](#)²⁷ is available on the web.

Your diploma will not be ready for a number of months. You may arrange to have it mailed to you when it is ready by completing the Diploma Request Form found on the Registrar's website, <http://registrar.berkeley.edu/electforms/DiplomaRequest.pdf>.

Dissertation Committee

The dissertation committee must consist of 3 members of the Academic Senate, voting or non-voting, one of whom must be from outside the department. The chair of the dissertation Committee is usually the student's advisor, but the Qualifying Exam Chair cannot also be a Dissertation Chair. Graduate Division must approve any additional committee member not a part of the Academic Senate. A written memo of justification, signed by the advisor plus curriculum vitae of the proposed non-Senate member, must be submitted to and approved by the Vice Chair and Graduate Division. See the Graduate Assistant for more details.

Dissertation Talks

CS Thesis Seminar (Dissertation Talk)

CS students must take one semester of CS298, designated as the Thesis Seminar, and give a one-hour talk on the principal results of their research, otherwise known as the dissertation talk. This must be done in the last semester in residence or in the semester in which the dissertation is filed. The talk will be advertised in the departmental calendar.

The Computer Science Colloquium or any one of the following regular seminars is acceptable for this requirement: Computer Systems, Theoretical Computer Science, Graphics, Numerical and Scientific Computing, Database Systems, AI/Vision/Robotics. The Associate Chair for CS, in consultation with the research advisor, may designate another seminar, if appropriate.

It is advisable to contact the professor in charge of the seminar at least 2 weeks before the semester in which the dissertation will be completed and advertise your talk in the Department Calendar. Summer graduates must plan to take the seminar in the spring semester.

CS Dissertation Talk Requirements

As part of the requirements for the doctoral degree, each student must give a public talk on the research covered by his/her dissertation. The dissertation talk is expected to be given within a period of a few months before the signing of the final submission of the dissertation. The talk should cover all the major components of the dissertation work in a substantial manner—in particular, the dissertation talk should not omit topics that will appear in the dissertation but are incomplete at the time of the talk.

²⁶ http://www.grad.berkeley.edu/policies/10_mistakes.shtml

²⁷ http://www.grad.berkeley.edu/policies/pdf/certificate_completion.pdf

The dissertation talk is to be attended by the whole dissertation committee, or, if this is not possible, by at least a majority of the members. Attendance at this talk is part of the committee's responsibility. It is, however, the responsibility of the student to schedule a time for the talk for that is convenient for members of the committee.

EE Thesis Seminar (Dissertation Talk)

EE students filing a Ph.D. dissertation must give a one-hour talk on the principal results of their research as part of the graduate requirement. This must be done in the last semester in residence or in the semester in which the dissertation is filed. Summer graduates must plan to give the talk in the spring semester before graduation or opt to graduate in the fall semester in order to give the talk in the fall semester. The talk will be advertised in the departmental calendar.

One preferable, but not necessary, venue for the dissertation talk is one of the group seminars. If this option is selected, it is advisable to contact the professor in charge of the seminar at least 2 weeks before the semester in which the dissertation will be completed. If another option is chosen, the student must make sure that the Seminar is adequately advertised. In both cases, complete the [EE Thesis Seminar Form](#)²⁸ and advertise your talk in the [Department Calendar](#)²⁹.

The dissertation talk is to be attended by the whole dissertation committee, or, if this is not possible, by at least the majority of the members. Attendance at this talk is part of the committee's responsibility. It is, however, the responsibility of the student to schedule a time for the talk that is convenient for members of the committee.

EE Dissertation Talk Requirements

As part of the requirements for the doctoral degree, each student must give a public talk on the research covered by his/her dissertation. The dissertation talk is expected to be given within a period of a few months before the signing of the final submission of the dissertation. The talk should cover all the major components of the dissertation work in a substantial manner—in particular, the dissertation talk should not omit topics that will appear in the dissertation but are incomplete at the time of the talk.

It is recommended, but not required, that thesis committee members attend the dissertation talk. Students must complete the EE THESIS SEMINAR FORM before they give the talk. By signing this form, thesis committee members agree that the scheduled time for the talk would work with their schedule in the case that they plan to attend the talk. Therefore, it is the student's responsibility to schedule the talk at a time when interested thesis committee members can attend.

5.4 EECS Department Exit Survey

All graduating/withdrawing/departing students must complete the [EECS Exit Survey](#)³⁰. There is also an optional [EECS Quality-of-Life Questionnaire](#)³¹ that we encourage all graduates to complete.

5.5 EECS Technical Report

Effective Spring 2006, every Ph.D. dissertation must be submitted to the EECS Technical Memorandum Series. Please fill out the [online submission form](#)³². Your manuscript will need to be in PDF format. Once submitted,

²⁸ <http://www.eecs.berkeley.edu/GradAffairs/EE/dissertation.talk.form.pdf>

²⁹ <http://coe.berkeley.hosted.webevent.com/cgi-bin/webevent.cgi?cmd=open&cal=cal2>

³⁰ <http://www.eecs.berkeley.edu/GradAffairs/exitgrad.html>

³¹ <http://www.eecs.berkeley.edu/Students/Grad/Affairs/GradQuality.html>

³² https://buffy.eecs.berkeley.edu/PHP/facres/menu.php?f_submit=techrpt

the report will be assigned a number, given an HTML coversheet, assigned a URL, and added to the [EECS Technical Reports Database](#)³³. You will be sent its number and URL via email.

Be sure to check in with the Graduate Assistant to ensure that all coursework, prelim, GSI, and other requirements are completed.

³³ <http://www.eecs.berkeley.edu/Pubs/TechRpts/>