The Committee on Higher Degrees (CHD) is responsible for overseeing all graduate degree programs of students in the Harvard School of Engineering and Applied Sciences (SEAS). Students may work toward one or two of three graduate degrees, Doctor of Philosophy (Ph.D.), Master of Science (S.M.), and Master of Engineering (M.E.); in one of four subjects, Applied Mathematics, Applied Physics, Computer Science and Engineering Sciences. SEAS also offers an S.M. and M.E. degree in Computational Science and Engineering.

The basic degree requirements and other matters pertaining to graduate study are summarized in the Graduate School of Arts and Sciences (GSAS) Handbook. This document discusses certain of these matters in greater detail. In addition to procedural ground rules relating to degree requirements, issues relating to acceptable graduate-level courses, cross-registration, part-time study and dissertation research in absentia are discussed. The actions of the CHD are based on the requirements and regulations detailed in this document, which normally is revised annually.

The CHD meets approximately six times during the academic year to review plans of study of students in all graduate degree programs, and to act on other pending business. Exceptions to the rules that follow can be granted only by the CHD. Petitions to the CHD must be in writing, and must have the approval of the student's faculty advisors. Ordinarily, the CHD will not act on any matter submitted for its consideration through the Student Affairs Office (Pierce Hall 110) less than ten working days prior to a given meeting. The Student Affairs Office will communicate deadlines to the graduate students in advance of each meeting.

The CHD meets at the end of each semester to review the records of students whose grade records are marginal. The CHD also reviews progress reports of students engaged in research. A student whose performance is below the standards of the SEAS or the GSAS may be informed that he/she may not re-register, thus terminating degree candidacy, or that he/she may register subject to fulfillment of specific academic conditions.

The GSAS form "Application for Degree" must be filed with the Student Affairs Office sufficiently far in advance so that it can be approved and forwarded to the GSAS to meet their following deadlines: **early August for a November degree, late November for a March degree, and mid March for a May degree (the exact deadlines will be available on the form itself)**. The courses listed on the “Application for Degree” must match exactly the courses listed on the CHD approved final degree plan.

All forms mentioned in this document are available on the school’s website and are to be submitted to the SEAS Student Affairs Office. A checklist of forms and deadlines is included in the appendix to this document.
DEGREE REQUIREMENTS

Graduate students are admitted to the SEAS for one of three degrees: the S.M., the M.E. or the Ph.D. Graduate students admitted to the SEAS as candidates for the Ph.D. degree may apply for the S.M. degree during the course of their studies, upon completion of the corresponding requirements. Students who have been admitted solely as candidates for the S.M. degree may apply for admission into either for the M.E. or the Ph.D. degree through the standard application process. However, students interested in the PhD are encouraged to apply directly to that program.

The Committee on Higher Degrees (CHD) of the SEAS approves each graduate student’s plan of study, any revisions of that plan, and monitors progress towards attainment of the degree. It is the student’s obligation to keep the CHD apprised of any departures in course selection from an approved plan in timely fashion, as described below. The course requirements discussed hereafter are phrased in terms of graduate-level half-courses taken in the SEAS (200-level courses in SEAS nomenclature), in other departments of the Faculty of Arts and Sciences (FAS), or by cross-registration at other Harvard Faculties or at the Massachusetts Institute of Technology (MIT). Certain restrictions apply to courses taken by cross-registration (see below). As a general rule, students are expected to take SEAS courses, unless their program requires courses not offered by SEAS. Ordinarily, at least half of the courses taken to satisfy SEAS degree requirements must be drawn from those offered by the SEAS. A course offered by an SEAS faculty member in another department of FAS is considered as being offered by the SEAS for the purposes of this requirement. Provision is made for a limited number of upper-level undergraduate courses in FAS (100-level courses) to be counted towards a graduate degree.

For SEAS purposes, a student's performance in letter-graded courses is evaluated based on the widely used 4-point system by assigning the twelve letter grades the following numerical equivalents: A(4.00), A-(3.67), B+(3.33), B(3.00), B-(2.67), C+(2.33), C(2.00), C-(1.67), D+(1.33), D(1.00), D-(0.67), E(0). All half-courses are weighted equally. An average grade of B on the SEAS scale requires a numerical average of 3.00. Grades B- or better are honor grades; grades C- or better are satisfactory grades.

An excused ABS grade is equivalent to a B for accounting purposes and a temporary INC grade is equivalent to a C- when determining cumulative average grades at the end of a given semester. Students must make up an excused ABS during the succeeding term, and are expected to resolve temporary INC grades promptly. Temporary INC grades are assigned in letter-graded courses at the discretion of the instructor, who may impose requirements such as the date by which the deficiency must be remedied. Fall term temporary INC grades must be resolved before the beginning of the succeeding spring term, and spring term temporary INC grades must be resolved before the beginning of the succeeding spring term. An excused ABS or temporary INC unresolved by the stated deadlines becomes a permanent ABS or INC on the student's record. A permanent INC or ABS is equivalent to an E; the course in question may be retaken for credit at a later time only if the student is allowed to continue. The EXC grade is not permitted for courses taken in an SEAS graduate program.

Graduate students may petition for a leave of absence for up to one year to pursue activities unrelated to their degree program (see the GSAS Handbook). Such a leave may not be repeated without the permission of the CHD, which will be granted only in exceptional circumstances.

Doctor of Philosophy (Ph.D.)

Traditional fields of study in Engineering and Applied Science, and the students entering those fields, have changed markedly over the last several decades. Fields are increasingly interdisciplinary, blurring boundaries between formerly distinct programs in SEAS and across FAS and all of Harvard. The goal of our curriculum is to foster the education of PhD students so that they develop both the in-depth knowledge of their fields and the broader appreciation and skills that they will need after graduation.

To earn a Ph.D. degree a student must acquire breadth and depth of knowledge in a field of study offered by the SEAS, must be able to demonstrate understanding and proficiency in the field, and must write an original and significant research dissertation. It is the duty of the faculty to help each student to define these goals more precisely with respect to his/her primary field of interest, to guide him/her toward their achievement, and to judge whether they have been satisfactorily met.
The first requirement is satisfied by passing with a cumulative grade average of at least 3.00, ten half-courses. Each of those ten courses must be completed with at least a grade of B- or better. At least 8 courses will normally be disciplinary courses, i.e. courses that provide the scientific, mathematical, and technical depth that students need for our graduate programs in engineering and applied science. Up to two courses can normally be “298r” or “299r” courses, “Innovation” style courses that broaden a student’s perspective, or relevant courses at a suitable level in non-science departments (e.g. economics) or schools (KSG, Business School, Medical School).

The CHD reviews the content of any 299r course when it is included on a program plan. A form is available in the Student Affairs Office which must be signed by the 299r instructor and returned to the Student Affairs Office on the date study cards are due.

Students are expected to take as many of the ten courses as possible from the 200-level courses offered by the SEAS. As a general rule, a student taking a given course is expected to take it within the SEAS, unless it is not offered by the SEAS. In order to help students with planning, areas have provided model programs. The model programs cover the following areas for SEAS: Applied Mathematics (AM), Applied Physics (AP), Computer Science (CS) and Engineering Sciences (ES). Within engineering there are distinct approaches for different areas. The model programs cover Atmospheres/Oceans/Climate/Environmental Engineering (AOSCE), Bioengineering (BE), Electrical Engineering (EE), Materials Science (MS), and Mechanical Engineering (ME).

Each Model Program might contain four types of courses:

(1) **Foundation courses** in Mathematics, Physics, Chemistry, and other disciplines.
(2) **Core courses**, which are graduate courses in each area seen as fundamental to that area. These courses will be offered annually and taken by most graduate students in that discipline/area.
(3) **Area** courses which train students in the various facets of their chosen area. These may include specialized classroom courses, intensive laboratory training in a research lab, and advanced skills in related disciplines (e.g. statistics or economics).
(4) **Breadth courses** to provide the student with familiarity and training in disciplines outside his/her area, to help ensure that our graduates are prepared for independent professional life after the PhD.

Courses included in a Model Program for an area of SEAS will normally be presumed suitable for graduate credit, whether at the 100- or 200-level, *for students in that area*. This presumption does not carry over for students in other areas. This structure is intended to accommodate the differences in prior preparation and educational needs among students in different areas of SEAS. Courses below 100 level are not suitable for graduate credit.

Please note that the model programs are updated regularly and available on the SEAS web site.

Information about the Computational Science and Engineering Program is available through the Institute of Applied Computational Science (IACS).

A limited number of acceptable graduate-level courses taken as a Special Student in the GSAS or when registered in the Harvard Summer School may be included in SEAS graduate degree programs if completed with an honor grade; however, acceptable offerings are rarely available through the Summer School. Courses taken under the auspices of the Harvard Extension Program may not be included. Students needing remedial work, in computer programming for example, may nonetheless find Summer School or Extension courses of interest. Not more than a total of five graduate-level courses taken elsewhere, taken as a Special Student or taken in the Summer School may be included in a Ph.D. degree program.

**GPA Expectations**

Throughout a student's career, the CHD will be monitoring his/her performance. Students must achieve at least a 3.00 average in the ten courses specified in the plan of study. No letter-graded course completed with a grade less than B- may be included. At the end of any semester, a student who has failed to maintain a 3.00 average grade or has received any unsatisfactory grade may be required to withdraw, thus terminating degree candidacy, or may be reduced to candidacy for a terminal Master's degree.
A Ph.D. candidate whose average grade at the end of the first term is between 2.50 and 3.00 normally will be warned that continuation as a Ph.D. candidate beyond the second term is contingent upon achieving a cumulative 3.00 or better average grade at the end of the second term. Failure to meet this standard normally will result in reduction to candidacy for the S.M. degree, the requirements for which must be met by the end of the third term. The student may petition for reinstatement to candidacy for the Ph.D. at the end of the third term; this petition will be granted only if there is a reasonable expectation that the qualifying examination can be completed on schedule during the fourth term. A Ph.D. candidate whose average grade at the end of the first term is less than 2.50 but who could achieve a cumulative 3.00 or better average grade at the end of the second term, working at the full-time rate, normally will be reduced to candidacy for the S.M. degree. Continuation as an S.M. Candidate for a third and final term is contingent upon a marked improvement in performance sufficient to provide reasonable assurance that the requirements for the S.M. degree will be completed at the end of the third term. A Ph.D. candidate who could not achieve a cumulative 3.00 or better average grade at the end of the second term normally will be required to withdraw at the end of the first term, thus terminating degree candidacy.

Scheduling of Courses and Research

A Ph.D. candidate's first year of graduate study ordinarily is spent principally on course work, although some students may begin research. The second year, in most cases, will involve half-time course work with the other half devoted to teaching and research. Subsequently, additional courses can be taken to fulfill any remaining requirements, and a transition would be made to full-time research. This is not, however, a hard and fast schedule that all students will necessarily follow. In a few special cases, it may be necessary to delay the start of research beyond the third term. In all cases early planning of the student's career at Harvard is highly desirable.

To this end, each student is assigned a faculty field advisor who is a member of the SEAS faculty. The field advisor is assigned based on the research interests outlined in the application, is in the student's professed field of interest, and is primarily responsible for helping the student to plan a strong, coherent program in that field. In each semester of the first year of graduate study, a student is required to have the study card signed by his/her field advisor. In subsequent years the research advisor will sign the study card.

The Ph.D. degree program specifies the ten SEAS graduate-level half-courses, or acceptable alternatives, be taken to satisfy the course requirements for the degree. The program should contain a descriptive title. The program should be supplemented by a statement explaining the content and purpose. A major test of a program's intellectual validity is the possibility of providing a rational and persuasive argument in its favor. Supporting statements by the student's advisors may also be necessary. The explanatory statement should be as brief as is consistent with clarity and completeness.

Prospective Ph.D. Program and Ph.D. plan of study: A second term responsibility

After consultation with his/her advisor, the student will complete the SEAS form entitled "Prospective Ph.D. Degree Program” and have it signed by his/her advisor and submit it by April 11, 2014. If necessary, the GSAS form entitled "Application for Academic Credit for Graduate Work Done Elsewhere" also should be completed and attached thereto. This form and all GSAS forms can be found at http://www.gsas.harvard.edu/gsas_forms/gsas_forms.php. We recognize that some students will enter SEAS already having taken some graduate courses, and in some cases will enter having already completed a Master’s degree. As a consequence, under ordinary circumstances the maximum number of courses for which academic, but not financial, credit will be approved is five and only if these courses are approved as part of the degree program. Nevertheless, it is likely that in most cases the actual approved number will be lower than five. The student's supplementary statement should justify the inclusion of such courses. The CHD may stipulate that special examinations be taken to evaluate knowledge gained elsewhere. Normally, academic credit will not be granted for graduate courses taken while a candidate for an undergraduate degree.

After reviewing the prospective degree program, the CHD may suggest modifications; it may insist upon some. In most cases, assuming conscientious interaction between student and advisors, approval should be routine. It is in the best interest of the student that the prospective degree program be submitted as early as possible, during the first term if

1 If the program exactly follows a model program then student only need indicate this on the form.
possible; in no case may submission be delayed beyond April 11, 2014. An approved prospective degree program is a condition for registration for a third term.

Advisor Selection: A second term responsibility

During the second term of study, the student will be focusing on the problem of identifying a specific research area and a potential dissertation supervisor. The potential dissertation supervisor might be the same person as his/her field advisor, but not necessarily so. Occasionally, the potential dissertation supervisor may not be an SEAS faculty member, but ordinarily must be a Harvard faculty member. The appropriate Director of Graduate Studies (DGS) must approve (in advance) if the student selects an advisor who is not a member of the SEAS faculty.

Every Ph.D. student with a non-SEAS research advisor must have an active SEAS co-advisor. The SEAS co-advisor will communicate with the student’s primary research advisor, the CHD, and the Student Affairs Office about academic or financial issues as needed. The SEAS Co-Advisor will chair the qualifying exam committee and the dissertation committee, meet with the student at least once a term to be updated about degree progress, sign off on the annual student progress report, advise the student on coursework and program requirements as needed, sign the student’s study card when primary research advisor is not a member of the FAS faculty, allow the student to register for their 300 level research course and submit the necessary grades at the end of the term when primary research advisor is not a member of the FAS faculty and communicate with the student’s primary research advisor about the student’s progress on a regular basis (at least once a term).

Ph.D. students who wish to work with an advisor external to SEAS are reminded that they must get approval from their DGS before committing to work with a non-SEAS advisor. Also, SEAS policy states that Ph.D. students who work with non-SEAS advisors have their G2 tuition paid for by the non-SEAS advisor rather than by SEAS. (Note: this policy is currently under review by the Graduate Education Policy Committee and is subject to change.)

Final Degree Program: A third term responsibility

At any time after approval of the prospective degree program, changes to it are subject to approval by the CHD. In the exceptional case that a student's plans change radically, a completely new prospective degree program should be submitted.

In consultation with the potential dissertation supervisor, the student will fill out the SEAS form entitled "Final Ph.D. Degree Program". These should be signed by the research advisor, and submitted to the Student Affairs Office before November 22, 2013, preferably earlier. The final degree program updates the prospective degree program by noting any revision, and includes nominations by both the student and the potential dissertation supervisor of one member each of the student's qualifying committee. The CHD reviews the final program and, on behalf of the Dean, nominates a fourth member for the qualifying committee, who usually will be a faculty member from an area of the SEAS other than that with which the student and potential dissertation supervisor are associated.

The members of the qualifying committee ordinarily should be Harvard faculty members, but on occasion MIT faculty members or other technical professionals of comparable stature from the local area may serve in this capacity with the approval of the CHD. The qualifying committee so constituted should include at least two SEAS faculty members, at least one of who normally should be a senior faculty member. Usually, the potential dissertation supervisor serves as chairman of the qualifying committee; but if the potential dissertation supervisor is not a Harvard faculty member, he/she will serve as co-chairman with an SEAS faculty member. An approved final degree program is a condition for registration for a fourth term.

Qualifying Exam: A fourth term responsibility

Approval of the final degree program by the CHD will then permit the student to schedule the qualifying examination. Once the student has agreed upon a time for the examination with all members of the qualifying committee, the Student Affairs Office should be notified (at least two weeks in advance). Arrangements as to location will be made by the student via https://events.seas.harvard.edu/VirtualEMS/ and confirmed by the Student Affairs Office. The qualifying examination should be taken no later than the end of the Reading Period during the fourth term; extension of this
deadline will be granted only if the chair of the qualifying committee makes a specific request to the DGS. A recommendation that the examination be held within a few weeks after that deadline as a matter of mutual convenience, or for good and sufficient reasons during the period June through September following the second year of graduate study, will normally be routinely approved, provided the student has a cumulative average grade better than 3.00. Marginal students, or postponement beyond the end of September in the fifth term, will receive careful scrutiny as to the reasons behind the recommendation.

The qualifying examination has the dual purpose of verifying the adequacy of the student's preparation for undertaking research in his/her chosen field, and of assessing his/her ability to synthesize the technical knowledge already acquired. The purpose of the examination is not to reassess the student's performance in formal courses; however, evaluation of the student's general knowledge in the major field is appropriate. The basic judgment to be made is whether the student has demonstrated sufficient mastery of the intellectual skills necessary to conduct research so that a confident prediction can be made that an acceptable doctoral dissertation will be forthcoming in timely fashion. These skills include the ability to pull together scientific ideas, to formulate technical questions, to recognize answers thereto and to make reasonable judgments on how to seek answers to such questions.

The format of the qualifying examination ordinarily is a two-hour oral examination devoted to the presentation and discussion of one or more potential dissertation topics and to more general questions. The intent is to test the student's comprehension of his/her chosen research field and to probe the limits of the student's technical knowledge in related areas. Various groups within the SEAS have different customs with regard to the detailed nature of the qualifying examination. The role of the Dean's nominee is to assure that comparable standards are applied throughout the SEAS. The qualifying committee should agree among themselves as to what is expected of the student and so inform him or her in advance of the examination.

The outcome of the qualifying examination is officially reported to the student by the Student Affairs Office. The examining committee may pass or fail the student, or may judge the performance to be inconclusive. A necessary condition for passing the student is that the potential dissertation supervisor signifies that he/she is willing and able to serve as dissertation supervisor. Within its discretion, the committee may stipulate further requirements, such as additional course work, a written examination or presentation of a research proposal, as conditions that must be satisfied. The research committee (see below) will determine whether these conditions have been met, and so report to the CHD. Failure means that the student may not re-register, thus terminating degree candidacy. In the case of an inconclusive performance, after consultation with his/her potential dissertation supervisor and CHD advisor, the student may schedule a second examination, which must be conclusive. Ordinarily successful completion of the qualifying exam is a condition for registration for a sixth term. The qualifying committee should explain to the student and report to the CHD its reasons for judging the performance to be inadequate and for granting a second examination.

Successful completion of the qualifying examination is a condition for registration for a sixth term.

**Dissertation Supervisor and Research Committee**

The final stages of the path to the Ph.D., once the qualifying examination has been passed, are initiated by the nomination by the dissertation supervisor of a research committee to oversee the student’s dissertation research. The committee monitors the student's research progress and approves the final dissertation. The SEAS form "Designation of Research Committee", signed by the dissertation supervisor and indicating the other members of the proposed research committee, must be submitted to the Student Affairs Office, ordinarily within one week after the qualifying examination. The CHD routinely reviews the composition of the proposed research committee, and may suggest or require additions. Subsequent changes in the composition of the research committee must be approved by the CHD. A duly constituted research committee must be in being throughout the rest of the student's graduate career.

The research committee normally consists of three or four Harvard faculty members, with the dissertation supervisor as chairman. MIT faculty members or other technical professionals of comparable stature from the local area may be included with the approval of the CHD. At least two SEAS faculty members, at least one of whom is a senior faculty member, must be included. If the dissertation supervisor is not a Harvard faculty member, he/she will serve as co-chairman of the research committee with a SEAS faculty member.
Progress Reports

The student is responsible thereafter for submitting progress reports to the Student Affairs Office once a year in the G3 year and beyond. These reports must be signed by all members of the research committee, and must contain a statement by the chairman. Progress reports are due by the end of Reading Period in the Spring term but can be submitted at any point in the academic year. In addition to the standard review of the progress of each student each semester, students in their eighth and subsequent semesters should meet with their research committees, assembled as a group, at least once a year. The CHD urges that committee meetings be held in September or early October, and that each student and his or her committee members take full advantage of the excellent opportunities that meetings offer for appraising a student’s progress toward the degree and for clarifying and resolving problems. It is especially urged that these meetings be held when the members of the committee come from different disciplines and schools. The CHD may require an additional progress report at the end of the Summer Period if there is any question as to whether the student should be permitted to continue. The progress report due at the end of the final semester, if the final Ph.D. oral examination (see below) is imminent, may be omitted at the discretion of the dissertation supervisor, provided the Student Affairs Office is duly notified.

Submission of a satisfactory progress report ordinarily is a condition for registration in the following semester.

Dissertation and Final PhD Oral Examination

By the end of the fourth or fifth year at Harvard, rarely later than the end of the sixth, once in a great while after just three years, the dissertation is finished to the satisfaction of the research committee. The dissertation must represent an original and significant contribution to knowledge. The dissertation should be a coherent document conforming with the customary standards of scholarly discourse and addressed to a broad audience in the corresponding subject rather than to a narrow audience of specialists in the field. The SEAS does not follow the practice prevalent in some departments in which a collection of manuscripts intended for publication (or actually published) as technical papers constitutes an acceptable dissertation. It should be understood, however, that the student has an obligation to prepare the work for publication in the archival literature in timely fashion. The dissertation must meet the GSAS requirements as to format; detailed information is available from the Student Affairs Office.

The last two requirements are the final Ph.D. oral examination and the submission to the Student Affairs Office of an electronic copy submitted as a PDF (Portable Document Format) file. The student must deliver a complete penultimate draft of the dissertation (except for the acknowledgments) to all members of the research committee at least two weeks prior to the final examination. Once the student has agreed upon a time for the examination with all members of the research committee, the Student Affairs Office should be notified (at least two weeks in advance). Arrangements as to location will be made by the student via https://events.seas.harvard.edu/VirtualEMS/ and confirmed by the Student Affairs Office. Public notice will be given. The Student Affairs Office strongly encourages students to schedule their defense not later than two weeks before the FAS PhD Dissertation submission deadline.

All members of the research committee must be present for the final oral examination. A request for remote participation by a member will be decided by the DGS on a case-by-case basis. In any such case, a committee meeting the stated SEAS requirements for composition must be physically present, in addition to any member participating remotely; the advisor must be physically present for the final examination and not the member participating remotely; all committee members must agree to the remote participation of any one; and the student is to send the presentation materials to the member participating remotely before the date of the examination, in addition to sending a penultimate copy of the dissertation.

The final examination is essentially a presentation and defense of the dissertation, though more general questions relating to the field of the dissertation are in order. At the end of the examination, the research committee may accept the dissertation, possibly subject to agreed upon revisions, or specify further requirements. If other than minor revisions are involved, the nature of the conditions to be met should be reported to the DGS. The dissertation supervisor must certify in writing that these conditions have been met before award of the degree can formally be recommended by the Dean.
Ph.D. Funding: Research Assistantships and Teaching Fellowships

First year Ph.D. candidates usually are supported by scholarships or other sources; they normally are not appointed as Teaching Fellows or Research Assistants. In the second and subsequent years of graduate study, most Ph.D. candidates serve as half-time Research Assistants during the academic year and full-time during the summer. They may also serve as Teaching Fellows, on a quarter-time or half-time basis, provided the total commitment to Teaching Fellowships and Research Assistantships does not exceed half-time during the academic year. Teaching Fellowships and Research Assistantships are regarded as an integral part of the student's educational experience.

All students entering the Ph.D. Program as of Fall 2013 will be required to TF for at least one term for a SEAS course or an FAS course taught by a SEAS faculty member. Students holding half-time appointments as Teaching Fellows or Research Assistants are regarded as full-time students. They will register for up to two half-courses per term in formal courses, as necessary to complete the course requirements for the degree. When serving as Research Assistants, they will register for the research course offered by their supervisor as many times as necessary to remain full-time students. When serving as Teaching Fellows, they may register for TIME-T. Students holding only a quarter-time appointment as a Research Assistant may register for three or four half-courses in addition to registering for the research course offered by their supervisor. Students holding only a quarter-time appointment as a Teaching Fellow may register for three or four half-courses in addition to registering for TIME-T.

No full-time student may accept employment other than Teaching Fellowships and Research Assistantships during the academic year, either inside or outside the University, which involves a time commitment of more than ten hours per week without the permission of the DGS. No restrictions apply to employment during the Summer Period, except that employment as a full-time Research Assistant precludes other employment. Ph.D. candidates who have passed their qualifying examinations may not be granted part-time status for the purpose of accepting employment without the permission of the DGS.

Master of Science (S.M.)

The S.M. degree is awarded for the successful completion of eight letter-graded courses. Students are expected to take as many of the eight courses as possible from the 200-level courses offered by the SEAS. As a general rule, a student taking a given course is expected to take it within the SEAS, unless it is not offered by the SEAS.

Ordinarily, at least four of the eight courses must be drawn from those offered by the SEAS. At least five of the eight courses must be graded 200-level courses, or their equivalents, not including reading and research courses. Exceptions are considered by petition.

Up to three of the eight courses may be 100-level FAS courses when the student and his/her advisors judge such courses necessary to meet the educational goals of the degree. Exceptions are considered by petition. Normally only one 299r course (reading/research course) will be counted in the eight courses, with exceptions considered by petition. One exception applies when a student chooses to write a Master’s thesis (see below).

A limited number of acceptable graduate-level courses taken as a Special Student in the GSAS or when registered in the Harvard Summer School may be included in SEAS graduate degree programs if completed with an honor grade; however, acceptable offerings are rarely available through the Summer School. Courses taken under the auspices of the Harvard Extension Program may not be included. Students needing remedial work, in computer programming for example, may nonetheless find Summer School or Extension courses of interest. Not more than a total of four graduate-level courses taken as a Special Student or in the Summer School may be included in a Master's degree program.

Harvard University employees who take courses for academic credit under the Tuition Assistance Plan are treated as though they had registered as Special Students, for purposes of SEAS graduate degree programs, should they subsequently be admitted to the GSAS.

The eight courses must constitute an integrated program planned with the concurrence of the student's advisors and approved by the CHD. The student's explanatory statement accompanying the S.M. degree program (see below) must demonstrate that the program has coherent purpose and achieves both breadth and depth of preparation in furtherance of that purpose.
Five categories of candidates for the S.M. degree can be distinguished: terminal S.M. candidates, part-time S.M. candidates, candidates in the SEAS doctoral program, Ph.D. candidates in another FAS department, and A.B.-S.M. candidates. The basic requirements above apply to all categories, but other requirements vary somewhat.

Terminal S.M. candidates normally are expected to complete the requirements for the degree in one academic year in residence, and ordinarily are not permitted to continue beyond a third semester unless they have been advanced to candidacy for a higher degree. Advancement to candidacy for the M.E. or the Ph.D. degree is on a competitive basis, and considered according to the normal procedures of the SEAS Committee on Admissions and Scholarships.

Terminal S.M. candidates will be assigned one faculty advisor who is a member of the SEAS faculty. This field advisor is primarily responsible for helping the student to plan a strong, coherent program in that field. The student should consult his/her field advise before registering for courses and agree upon a tentative program. In each semester of study in the S.M. program, a student is required to have the study card signed by his/her field advisor.

SEAS doctoral students may apply for one SM degree en-route to the PhD. Students must have a Final PhD program plan that has been approved by the CHD in the subject area in which you intend to apply for the SM eight courses from that plan completed with grades and taken while a student in the PhD program (no transfer coursework allowed toward the SM).

Doctoral students who wish to earn the S.M. enroute must complete and submit a degree application found on the FAS Registrar’s website. Please submit the hard copy of it to SAO by the appropriate deadline. Students wishing to apply for the SM in a subject are other than their PhD subject area may do so only if you have an SM plan approved by the CHD in that subject.

**SM Program Plan**

The SM Program Plan should be comparable to that customary for the first year of a Ph.D. program, with special attention to attaining some breadth and depth of preparation. An approved S.M. degree program ordinarily is a condition for registration for a second term. The SEAS form "S.M. Degree Program" must be completed, signed by both advisors, and submitted together with the required supplementary statement through the Student Affairs Office for approval by the CHD before the end of September. The program proposed ordinarily should allow the student to complete the requirements for the degree in one academic year, but may propose continuation for a third and final semester. Subsequent changes must be approved in advance by both of the student's advisors and in timely fashion by the CHD.

**GPA Expectations**

Students must achieve a 3.00 or better average grade in the courses offered for the S.M. degree; no course completed with a grade less than C- may be included. Failure to maintain a cumulative 3.00 or better average grade or receipt of any unsatisfactory grade may require that the student withdraw, thus terminating degree candidacy. Academic credit is not granted for graduate work done elsewhere.

A regular S.M. candidate whose average grade at the end of the first term is between 2.50 and 3.00 normally will be warned that he/she will not complete the requirements for the degree at the end of the second term unless a cumulative 3.00 or better average grade is achieved. Should the student fail to satisfy the requirements for the S.M. degree at the end of the second term, continuation for a third and final term will be granted provided there is reasonable assurance that the degree requirements can be completed at the end of that term. A regular S.M. candidate whose SEAS average grade at the end of the first term is less than 2.50 but who could achieve a cumulative 3.00 or better average grade at the end of the second term, working at the full-time rate, normally will be warned that continuation for a third and final term is contingent upon a marked improvement in performance sufficient to provide reasonable assurance that the requirements for the S.M. degree will be completed at the end of the third term. A regular S.M. candidate who could not achieve a cumulative 3.00 or better average grade at the end of the second term normally will be required to withdraw at the end of the first term, thus terminating degree candidacy.

**Part-time SM Program**
A limited number of S.M. degree candidates are admitted to study on a part-time basis. They must take at least one half-course each semester, and ordinarily no more than two. Such students are strongly encouraged to work at a rate of two half-courses per semester whenever possible. The degree requirements normally must be completed within four years. The SEAS form “Plan of Study/Degree Program for the Part-Time S.M. Degree” should be completed, signed by the student’s advisors and submitted to the SEAS Student Affairs Office. In all other respects, such students are treated as though they were regular S.M. candidates; in particular, their performance will be reviewed at the end of each semester. A part-time S.M. candidate must achieve a cumulative 3.00 or better average grade at the end of each academic year; failure to meet this standard normally will require that the student withdraw, thus terminating degree candidacy.

SEAS PhD Candidates earning the S.M. degree enroute

Ph.D. candidates in the SEAS may apply for the S.M. degree upon completion of the corresponding requirements, normally at the end of the first year of graduate study. The SEAS form “S.M. Degree Program” must be completed, signed by the research advisor and submitted together with the required supplementary statement through the Student Affairs Office for approval by the CHD. Additional flexibility in satisfying the basic S.M. requirements as part of those for the Ph.D. may be appropriate.

PhD Candidates from other FAS Departments

Ph.D. candidates in another FAS department who wish to be candidates for the S.M. degree, which is offered only by the SEAS, should petition the CHD before the end of September of the academic year in question, with the knowledge and consent of their parent department. They will be assigned a field advisor in the SEAS or in the parent department and a CHD advisor. They must meet all requirements set forth above applicable to regular S.M. candidates in the SEAS, except that the requirements for the degree may be completed within four consecutive semesters. Particular attention should be paid to the expectation that at least half of the graduate-level courses offered in satisfaction of the requirements for the S.M. degree will be drawn from those offered by the SEAS. Other aspects of the student's graduate career at Harvard remain the province of the parent department.

AB/SM Program

Undergraduates in Harvard College who have been granted Advanced Standing have the choice of graduating with the A.B. degree at the end of three years or remaining for a fourth year. During their third year, they may apply in the usual manner to the GSAS for admission to candidacy for the S.M. degree during their fourth year. They will be admitted if it is possible for them to complete the requirements for both the A.B. and the S.M. by the end of their fourth year. Continuation as a student in the GSAS beyond the fourth year requires, in effect, that the usual competitive graduate admission procedures be followed. Early planning of the student's program is essential since flexibility may be limited. Students admitted to the A.B.-S.M. program will be assigned field advisors shortly after their acceptance, and CHD advisors during the succeeding summer; they are encouraged to consult with them before the beginning of the fall term. They must meet all requirements set forth above applicable to regular S.M. candidates in the SEAS. Particular attention should be paid to the expectation that at least half of the graduate-level courses offered in satisfaction of the requirements for the S.M. degree will be drawn from those offered by the SEAS.

Prospective A.B.-S.M. candidates should be aware that it is possible to designate graduate-level courses taken prior to the fourth year for inclusion in the S.M. rather than the A.B. program, provided this is done before the course is taken. There can be no assurance, however, that such courses will in fact be accepted in a S.M. program unless approved in advance by the CHD; and such courses cannot be included in the A.B. program. A tentative plan of study may be submitted to the CHD for an advisory opinion.

Master of Engineering (M.E.)

Graduate students in the SEAS who wish to pursue more advanced formal training without undertaking the research required for completion of a doctoral dissertation may earn the M.E. degree by successfully completing one year of course work and one year of research, including a final oral presentation of the thesis. A thesis is required in the M.E. program.
The requirements for the M.E. degree are eight half courses, plus eight additional research-oriented courses at the 300-level that result in the completion of the required ME thesis. The letter-graded courses must be completed with a 3.00 or better average grade; no course completed with a grade less than B- may be included. Failure to maintain a cumulative 3.00 or better average grade or receipt of any unsatisfactory grade may require that the student withdraw, thus terminating degree candidacy. Not more than eight 300-level reading and research courses may be included in a SEAS M.E. program.

These requirements imply that an ME student will be expected to take eight non-300 level courses (including up to one 299r) and eight 300 level research courses. ME students may take additional non-300 level courses if doing so is helpful for the student’s thesis; the ME advisor must support the enrollment in these additional courses and doing so may not extend the time to degree beyond two years.

Academic credit is not granted for graduate work done elsewhere. In each semester of the first year of graduate study, a student in the M.E. program is required to have the study card signed by his/her advisor.

The sixteen half courses, including research courses, offered for this degree must form a coherent plan of study approved by the CHD. The SEAS form "M.E. Degree Program" should be completed, signed by the student's advisor, and submitted together with the required supplementary statement through the Student Affairs Office for approval by the CHD before the end of the first term of graduate study. Subsequent changes in the plan of study must be approved in advance by both of the student's advisor and by the CHD. Students are expected to complete the requirements for the M.E. degree within four consecutive semesters. Continuation beyond the fourth semester will be granted only if there is reasonable assurance that the requirements can be completed by the end of the fifth semester.

Master’s Thesis (S.M. and M.E. degrees)

A candidate for a terminal Master's degree, with the prior approval of a faculty supervisor and of the CHD, may undertake an extended reading and research project resulting in what amounts to a Master's thesis. The thesis is optional for the S.M. degree and required for those pursuing the M.E. degree. In connection with this project, an S.M. candidate may take no more than two SEAS letter-graded reading and research courses, no more than one in any given term; M.E. candidates may take up to eight 300-level reading and research courses, ordinarily in their second year. When a thesis project is pursued in connection with a terminal Master’s degree, the thesis supervisor, in consultation with the student, shall nominate an outside reader who is a member of the SEAS faculty for approval by the CHD before Spring Recess in the final term (or Thanksgiving Recess if appropriate).

The final draft of the thesis must be transmitted to the thesis supervisor and outside reader by the first day of Reading Period, and the student should simultaneously submit a one or two page abstract to the Student Affairs Office. The thesis supervisor and outside reader should each submit to the Student Affairs Office by the last day of Reading Period a letter giving their evaluation of the thesis. It is expected that such a thesis will represent a more substantial contribution than is customary for an undergraduate senior thesis, but less so than a doctoral dissertation. The thesis will follow a similar format to a Ph.D. dissertation, and satisfy similar criteria. The main difference is in the volume of original work expected of a master’s thesis, which might have the content of roughly 25% of original research as in the Ph.D. dissertation. No part of a master’s thesis may be included in a subsequent Ph.D. dissertation. The student should note that the following four points should be covered in a master’s thesis: introduction, stating the question being asked, or hypothesis being tested, or design challenge being addressed; literature review, summarizing pertinent prior work; original research or design; and conclusions, stating what was learned. The thesis abstract and evaluations will be made part of the student's permanent record. When an S.M. or M.E. degree program approved by the CHD provides for or requires the preparation of a thesis, award of the degree will not be recommended by the CHD until the abstract and satisfactory evaluations have been received by the Student Affairs Office.

Cross Registration

Many SEAS students have occasion to cross-register for one or more MIT graduate courses; fewer avail themselves of other opportunities for cross-registration. The following restrictions on cross-registration, constituting SEAS interpretations of the stipulations in the GSAS Handbook, must be satisfied by graduate students in SEAS degree programs. They apply to all courses taken by cross-registration, cumulatively where appropriate.
The reasons for taking graduate-level courses by cross-registration must be explained in the student's supplementary statement accompanying the degree program. Ordinarily, only graduate-level courses comparable in level of technical content to SEAS 200-level courses may be taken by cross-registration. MIT courses comparable to Harvard reading and research courses may not be taken by cross-registration. Courses taken by cross-registration should cover subjects not otherwise available under the FAS: that is, they should not be taken in place of or in addition to any comparable FAS course without good and sufficient reasons. The student must satisfy the GSAS in this regard before cross-registering; and should satisfy the CHD before such a course may be included in an SEAS degree program. Ordinarily, an SEAS graduate student may not cross-register for any course that is not directly related to his/her degree program. The GSAS limits the number of courses that may be taken by cross-registration to no more than half of the student's total program of study. The SEAS interpretation of this is that no more than half of all letter-graded courses, exclusive of SEAS letter-graded reading and research courses, may be taken by cross-registration. The operative limit may be smaller than this in order to satisfy other SEAS restrictions on degree programs given above.

MIT distinguishes among courses primarily for undergraduates, those primarily for graduate students, and those primarily for graduate students and approved for graduate degree credit. MIT courses designated as primarily for graduate students and approved for graduate degree credit in the department concerned may be equated to SEAS 200-level courses, provided they have comparable technical content. MIT courses designated as primarily for graduate students may be equated to SEAS 100-level courses, provided they have comparable technical content. MIT courses designated as primarily for undergraduates ordinarily may not be taken for credit by SEAS graduate students.

**PART-TIME STUDY**

The GSAS normally does not offer part-time graduate degree programs. The SEAS admits a limited number of S.M. degree candidates who study on a part-time basis. The special rules that apply to such students are detailed above. Under unusual circumstances detailed in the GSAS Handbook, a full-time degree candidate may petition for permission to work temporarily as a part-time student. Such part-time students usually register for two half-courses per term. Unless a student has been admitted directly into the part-time S.M. program, petitions for part-time status on grounds of outside employment normally will not be granted until at least one year of full-time graduate study as an SEAS degree candidate has been completed. Terminal Master's degree candidates who need less than four half-courses to complete the requirements for the degree will be charged tuition on a per course basis if they wish to work at less than a full-time rate during their final semester.

Part-time students are subject to the same requirements and regulations as full-time students. When granted temporary part-time status, a Master's degree candidate or a Ph.D. candidate who has not completed the course requirements for the degree and passed the qualifying examination will be permitted by the CHD to extend the normal deadlines for completing the corresponding requirements by one semester; in extraordinary circumstances, the student may petition the CHD for an extension of up to one year. When the problem arises from temporary health or family considerations, no special accommodations are usually required for Ph.D. candidates engaged in dissertation research, since adequate flexibility is already available. Employment inside or outside the University while engaged in dissertation research will be dealt with below.

Normally, a Ph.D. candidate will embark on the preliminary phases of the research component of the degree requirements at some point during the period between the end of the second semester of graduate study and the qualifying examination during the fourth semester. Many students seek employment outside the University during the summer following their first academic year of graduate work; some obtain employment within the University, perhaps commencing research. Most students remain in residence and devote themselves to full-time dissertation research in succeeding summers. The academic year extends from the day appointed for GSAS (and SEAS) fall registration through the succeeding Commencement; however, graduate students who remain at the University during the Summer Period need not register in the Summer School to be regarded as students in residence.
DISSERTATION RESEARCH IN ABSENTIA

Dissertation research in absentia is defined as research that is not done primarily at Harvard and is not done under the immediate direction of a member of the Harvard faculty. Before discussing the regulations governing dissertation in absentia by SEAS Ph.D. candidates, several distinctions should be made. When a Ph.D. candidate is away from Harvard temporarily conducting fieldwork as part of his/her dissertation research, under the general direction of the dissertation supervisor, this is not deemed to constitute dissertation research in absentia.

It is not uncommon for MIT faculty members, or technical professionals of comparable stature from the local area, to serve on the research committee of SEAS Ph.D. candidates. On rare occasions, such individuals may serve as dissertation supervisors. In such cases, the research committee must be co-chaired by an SEAS faculty member, and the research committee normally should meet together as a group with the student whenever a progress report is required. Provided the research is done primarily at Harvard or MIT, such circumstances are not deemed to constitute dissertation research in absentia.

There may arise situations in which the dissertation supervisor is temporarily absent on leave or ceases to be a Harvard faculty member while a Ph.D. candidate is engaged in dissertation research. When the dissertation supervisor is temporarily absent for a substantial period, another member of the research committee, ordinarily an SEAS senior faculty member, should be designated by the research committee as chairman, and the Student Affairs Office should be notified accordingly. If another member of the research committee ceases to be a Harvard faculty member, the committee should be reconstituted.

Faculty members normally should not agree to serve as dissertation supervisors unless they expect to see the research through to its conclusion. Should the dissertation supervisor cease to be a Harvard faculty member before the Ph.D. candidate completes the requirements for the degree, the research committee must be reconstituted. The student may wish to find a new dissertation supervisor. If the original dissertation supervisor and the student wish to continue their research collaboration, two situations arise. If the original dissertation supervisor remains in the local area and the research can be carried out primarily at Harvard, the previously stated rules shall apply. If the original dissertation supervisor does not remain in the local area or the research cannot be carried out primarily at Harvard, the rules stated below regarding dissertation research in absentia shall apply; these require that an SEAS faculty member assume the formal role of dissertation supervisor.

The following regulations govern dissertation research in absentia, as defined above. The student must have the consent of his/her dissertation supervisor, who must be an SEAS faculty member, and of his/her research committee. The student must establish to the satisfaction of the CHD that there are compelling educational reasons for the research to be done in absentia. The financial advantage of working in absentia is not an acceptable reason. The student must have completed all course requirements for the degree. The research committee must have approved the dissertation topic and a proposed plan of research. The student must register as a Travelling Scholar. If employed at more than a ten hour per week rate, the student must submit a letter from the employer certifying that three quarters of his/her working time can be devoted to dissertation work. The dissertation supervisor may add additional requirements before agreeing to direct dissertation research in absentia. The completed dissertation, in a form ready for study by the research committee, must be submitted at least three months before the final oral examination. All applicable regulations governing Ph.D. candidates in residence continue to apply. In particular, the requirement for periodic progress reports must be met; however, the research committee need not meet together as a group with the student if it deems that to be unnecessary and impractical. Research completed while in residence at Harvard may be written up in absentia if all of the above regulations are complied with except those relating to CHD permission and employer certification.
APPENDIX: FORMS AND DEADLINES

This appendix lists the more important SEAS and GSAS forms which graduate students may encounter in the course of satisfying the requirements for the Ph.D., S.M. and M.E. degrees. The various forms are available on the SEAS or GSAS website; all forms must be filed with the Student Affairs Office by the stated deadlines.

**Prospective Ph.D. Program (SEAS).** This form specifies the ten graduate-level courses offered to satisfy the course requirements for the Ph.D. It must be filed before the Spring Recess in the second semester of graduate study, and must be accompanied by an explanatory statement.

**Final Ph.D. Degree Program (SEAS).** This form updates the prospective Ph.D. degree program, and specifies the potential dissertation supervisor and two additional members of the qualifying committee. It must be filed before the Thanksgiving Recess in the third semester of graduate study, and must be accompanied by an explanatory statement.

**Application for Academic Credit for Graduate Work Done Elsewhere (GSAS).** This form specifies graduate-level courses taken elsewhere for which academic credit in the Ph.D. Degree Program is sought. It should be attached to the Prospective Ph.D. Degree Program if required, and the explanatory statement should justify inclusion of such courses.

**Designation of Research Committee (SEAS).** This form specifies the membership of the research committee, which monitors the Ph.D. candidates research progress and approves the final dissertation. The dissertation supervisor, in consultation with the student, nominates the original membership of the research committee at the time the qualifying examination is passed, normally during the fourth semester of graduate study. The student must arrange to reconstitute the research committee as necessary thereafter by filing a new Designation of Research Committee form.

**Progress Report (SEAS).** Ph.D. candidates engaged in dissertation research must file a progress report signed by all members of their research committee by the end of Reading Period in the sixth and eighth semesters of graduate study, and in each subsequent semester. In the eighth semester and beyond, the committee should meet together as a group with the student.

**Application for Degree (GSAS).** This form notifies the SEAS and GSAS that the student expects to complete the requirements for the designated degree prior to the next degree recommendation deadline.

**S.M. Degree Program (SEAS).** This form specifies the eight graduate-level courses offered to satisfy the degree requirements. It must be filed by all S.M. candidates by Study Card Day in the first semester of graduate study, and must be accompanied by an explanatory statement.

**Petition for Part-Time Study (GSAS).** This form must be completed annually by any student requesting to be a part-time student. SEAS and GSAS must approve. Ordinarily this form is used by student’s wanting to enroll in the part-time S.M. program.

**M.E. Degree Program (SEAS).** This form specifies the sixteen graduate-level courses offered to satisfy the degree requirements. It should be filed before the Spring Recess in the second semester of graduate study, and must be accompanied by an explanatory statement.

**Application for Change of Subject (GSAS).** Students are admitted as candidates for the S.M., M.E. or Ph.D. in one of four subjects: Applied Mathematics, Applied Physics, Computer Science and Engineering Sciences. This form is used if the student wishes to change the degree designation from one of these subjects to another.