



**Boston University** College of Engineering  
Division of Systems Engineering

# **Systems PhD Handbook 2024-2025**

# SE PhD Handbook

All SE PhD students must adhere to and meet the PhD degree requirements as set forth by the College of Engineering and the Division of Systems Engineering.

## Index:

Division & Engineering Contacts.....	4
PhD Degree Requirements .....	4
General Guidance .....	5
First Year Course Selection: .....	5
Transfer Credits: .....	5
Grades for 900-level Coursework: .....	5
Audits:.....	5
Policies and Procedures.....	5
Satisfactory Academic Progress for PhD Students.....	6
PhD Program Learning Outcomes .....	7
SE PhD Program Completion Schedule .....	8
Finding a Research Home .....	10
Finding a Research Advisor and Project .....	10
Academic vs. Research Advisors.....	11
Who Can Be A Research Advisor .....	11
Research Rotations.....	11
PhD Funding, Overview .....	12
PhD Funding, Rates, Semester Hiring Deadlines .....	14
PhD Funding, Stipend Types .....	15
PhD Funding, Taxes .....	15
PhD Funding, Summer Tax Withholding .....	16
SE PhD Travel Award .....	16
Teaching Practice Requirement .....	17

PhD Candidacy, Math Requirement.....	18
PhD Candidacy, Subject Qualifying Examination .....	18
Pre-Prospectus Requirement, Advanced RCR .....	20
Prospectus Defense .....	20
Committee .....	20
Special Service Appointment Form.....	21
Dissertation Topic .....	21
Written Prospectus.....	21
Scheduling the Prospectus Defense .....	22
Conduct and Length of the Oral Examination .....	22
Assessment.....	23
Reporting on Results .....	23
Petition to Extend Candidacy .....	24
PhD Annual Progress Report.....	24
Post-Prospectus Credits, Timeline.....	24
Dissertation, Requirements.....	25
Written Dissertation .....	25
Dissertation Defense, Final Oral Examination .....	25
Dissertation Defense, Committee .....	26
Special Service Appointment .....	26
Dissertation, Scheduling.....	26
Scheduling the Prospectus Defense .....	26
Dissertation, Defense .....	27
Conduct and Length of the Final Oral Exam .....	27
Assessment.....	27
Reporting.....	28
Dissertation, Library Submission.....	28
Helpful Links.....	29
PhD Internship Experience .....	29

Process .....	30
Required Documents.....	30
Forms.....	30
Division Forms & Links .....	30
College of Engineering Forms & Links.....	31
Apply to Graduate .....	31

## Division & Engineering Contacts

- **Advisor**
- **Graduate Programs Manager**  
Bulgamaa Batdelger, [se@bu.edu](mailto:se@bu.edu), 617-358-0351  
15 Saint Mary's Street, Room 118
- **Associate Division Head for Graduate Programs**  
Professor Hua Wang
- **College of Engineering, Graduate Programs Office**  
**Stacey Herman, Assistant Dean for Graduate Programs and**  
**Deputy Title IX Coordinator**  
44 Cummington Mall, Room 114, [enggrad@bu.edu](mailto:enggrad@bu.edu)

## PhD Degree Requirements

**All PhD students are assigned an academic advisor when entering the program. The Graduate Programs Manager will notify incoming students about their advisor assignment prior to registration. The student's academic advisor can provide general information/guidance and help the student to complete his/her course registration.**

By April of the first academic year, PhD students should have identified their research advisor and inform the Division Graduate Programs Manager at [se@bu.edu](mailto:se@bu.edu).

- [College of Engineering Graduate Bulletin](#)
- [PhD Program Overview](#)
- [SE PhD Program Requirements](#)

- Post-bachelor's PhD Masters Requirements  
Post-bachelor's PhD students must complete the Masters requirements and declare the masters degree on completion of the Prospectus Defense.

## General Guidance

**First Year Course Selection:** All PhD students are strongly encouraged to take the MS core courses before the taking the Qualifying Examinations and take two concentration area courses to help with their research.

**Transfer Credits:** PhD students are not permitted to transfer credits, with one exception. Post-Master's PhD students who obtained their Engineering Masters degree at Boston University may petition to apply credits not used for their Master's degree to their PhD program. Only credits that are applicable to degree requirements are acceptable (i.e., 500-level and above, a B or better, etc.). The student is required to fill out a Graduate Petition Form and have it signed by his/her advisor and Division Associate Head before submitting it to the Division Graduate Programs Manager for processing.

**Grades for 900-level Coursework:** Only grades of P, F, or J will be assigned to research/dissertation credits.

**Audits:** After all credit requirements have been fulfilled, PhD students are permitted to audit one course per semester in order to continue to take advantage of course offerings.

## Policies and Procedures

Policies and Procedures are outlined in the College of Engineering Graduate Bulletin, the Graduate Programs Office website (graduate life and academic resources), and the Professional Development & Postdoctoral Affairs Office; here are some helpful links.

- Academic Conduct Code
- Auditing Courses

- Childbirth and Adoption Accommodation  
Submit the Childbirth and Adoption Accommodation for Full-Time PhD Students Notification Form to the Graduate Programs Manager at se@bu.edu.
- Course, Grade, and Degree Policies
- Graduate Program Deadlines
- Intellectual Property Policy Agreement
- Laboratory Injuries – Coverage for PhD Students
- Registration and Attendance  
**NOTE:** Failure to register for classes by the published registration deadlines may cause your appointment to be terminated and/or delay payment of your weekly stipend.
- Student Bereavement
- Student Records

## **Satisfactory Academic Progress for PhD Students**

The College of Engineering is committed to five full years of financial support for graduate students in the CoE PhD program who maintain Satisfactory Academic Progress. This support will be in the form of Teaching Fellowships, Research Assistantships, or Graduate Fellowships. Funding beyond five years is generally provided (but not guaranteed) to students who are working productively toward the PhD degree. The following achievements are required to maintain Satisfactory Academic Progress:

- Students must complete the required coursework with a B average (GPA of 3.0) or better and pass the PhD qualifier exam within the allotted time frames. Thereafter they need to complete a Dissertation Prospectus and a Dissertation. Details on the course requirements and qualifier exams are found on the respective departmental or division web sites.

Students are expected to find a research home by the end of their second semester. A student can either join a research group directly on their arrival, or can go through a rotation program through different laboratories. If a student does not find a research home after two rotations (at least three months each) by the end of the second semester, division support over the summer may be available on a case-by-case basis. A lack of adequate effort to secure a research home by the end of the

second semester, or the inability to find a faculty research supervisor willing to support the student with DRF funding by the end of 12 months is interpreted as the student making insufficient progress towards the PhD degree and may be subject to removal from the program.

In rare cases, after the first 12 months a student is able to identify a faculty willing to serve as a research supervisor but neither the faculty nor the student is able secure extramural funding for the second year. This student can petition and request one academic year (2 semesters) of funding from departmental or division resources. Such a request will need to convey to the chair or division head that the student has found a research advisor willing to supervise the student and that the advisor and/or student have a concrete plan to secure extramural funding sources following the additional academic year. Decisions to support this request are at the discretion of the department chair/division head. If approved, and no such funding has emerged after the second year, these students will be deemed as not making satisfactory academic progress and they may not be permitted to complete their PhD studies. After joining a laboratory in accordance with the conditions above, students register for research credits each semester and summer they work in that laboratory. If the supervisor feels the student is not making satisfactory progress, the supervisor will provide a 4-month warning letter (equivalent to a semester or summer). If the progress remains unsatisfactory, the faculty will dismiss the student from their laboratory. The student must then either find an alternative funding source from an individual faculty member or leave the program. After dismissal, the student has one summer or academic semester to find alternative support. During this period, the department or program is under no obligation to find support for the student but may choose to do so, at the discretion of the department/program leadership.

Any egregious violation of academic or research ethics may result in immediate dismissal from the program at any stage with no opportunity for re-admission.

## **PhD Program Learning Outcomes**

The Division Program Learning Outcomes are designed to provide a given set of courses and other requirements so that students may acquire the knowledge, skills, habits of mind, and attitudes necessary to engage in a systems engineering related career on graduation.

## SE PhD Program Learning Outcomes

1. Demonstrate advanced quantitative and analytical foundations in systems, control and decision theory, optimization, simulation, and stochastic processes.
2. Formulate research problems, advance the state of the art in particular topics, and develop rigorous innovative methods and tools to model, design, analyze, optimize and manage human-made and physical systems within a broad array of applications.
3. Demonstrate proficiency in written and oral communication skills and the ability to disseminate research findings through presentations and in peer reviewed publications.

## SE PhD Program Completion Schedule

<b>Register for classes</b>	Before the start of each semester. See College of Engineering Graduate Deadlines.
<b>First Semester Research Rotation</b>	By October 1 of the first semester of matriculation
<b>Second Semester Research Rotation</b>	Before the start of the second semester of matriculation
<b>Obtain a research advisor</b>	Before the end of the second semester of matriculation, no later than April 30.
<b>Math Requirement</b>	Must complete before taking the Qualification Exam. See Math Requirement Section. (SE Core courses fulfill the requirement.)
<b>PhD Subject Qualifying Examination</b>	Held in May between Commencement and Memorial Day. Must pass within the first three semesters.



<b>PhD Candidacy</b>	Candidacy is achieved after passing the PhD Subject Qualifying Examination and completing the Math requirement. Must achieve by end of third semester.
<b>Meet with Major Advisor</b>	Prior to the fall semester each year, complete the Annual Progress Report.
<b>Advanced RCR Requirement</b>	Prior to the Prospectus Defense, PhD students must complete the Advanced RCR requirement, including the online module through CTI and the RCR course ENGEK 800.
<b>Prospectus Defense</b>	Students are required to present a Prospectus Defense by the third year of study. No student will be allowed to present a Prospectus who has not become a candidate in the PhD Program or completed the RCR requirement. See Prospectus Defense Section for further detail.
<b>Declare MS Degree</b>	Post bachelor's PhD students must declare their MS Degree (see MS Handbook for MS program planning sheet) on successful completion of the Prospectus Defense.
<b>Dissertation</b>	<b>Doctoral students must defend a written dissertation before a Dissertation Committee by the end of the fifth year of candidacy.</b> See Dissertation Section for further detail.
<b>Application to Graduate</b>	See Apply to Graduate section for Graduate Deadlines and link to College of Engineering form.

## **Library Submission**

See Library Submission section.

## **Finding a Research Home**

Most students choose to do their research with a faculty member from the SE Department or affiliated research centers. To find out more about specific research programs, please visit the individual faculty member webpages via the SE, Center for Information and Systems Engineering (CISE) or faculty website.

## **Finding a Research Advisor and Project**

A major requirement for the PhD degree is a research-based dissertation. Each student is responsible for finding a research project, conducting scientific studies under the guidance of an approved faculty member, presenting the proposal and results to the general scientific community in a public defense and finally turning in a dissertation to be bound for the library and the SE Division.

Occasionally students enter the program with a specific research advisor in mind and may even plan to work on a specific project. The majority of students, however, will utilize the first two semesters to determine what their specific interests are in the field of systems engineering and identify the opportunities for funding in a professor's lab.

PhD students typically connect with their research advisors through the mechanism of their lab rotations. In general, the procedure involves three steps:

- (1) doing rotations and deciding upon a research area;
- (2) joining a specific lab; and
- (3) developing a dissertation research project.

**A minimum of two rotations must be completed by the end of the first academic year. RA positions should begin around April 30.**

Students can gain information about steps (1) and (2) through coursework, informal discussions with faculty and, most importantly, the lab rotations. An easy way to find out what is available is to check the list of current Faculty Research Interests and SE Laboratory and Research Center Descriptions, available on the SE website.

Another valuable way of learning more about specific research opportunities is to speak with other graduate students who are currently working in the various SE faculty labs. The best measure for learning about working in a specific lab is to make an appointment to speak with the faculty member in charge of a lab you are interested in.

**Some useful questions to ask him/her are:**

- What projects are currently going on and what projects are planned for the near future?
- What background is required to work in the lab?
- How is the lab funded and is there the possibility of funds for a new graduate student?
- What expectations does the faculty member have of graduate students?
- If the potential advisor has been at BU for at least a few years, does he/she have a strong history of training students in a timely manner? Have his/her students generally been successful?

Once a student finds a research opportunity and has the consent of a faculty member to be his/her advisor, the process of developing a research project begins.

## **Academic vs. Research Advisors**

Each new student is assigned an academic advisor when entering the program. Incoming PhD students will be notified about their advisor prior to registration by the Graduate Programs Manager. The student's academic advisor can provide general information/guidance and help the student to complete his/her course registration for the first year.

## **Who Can Be A Research Advisor**

For PhD students, any full-time member of the SE faculty, or any affiliated or adjunct faculty member who has an appointment with the Division, is eligible to serve as a research advisor.

## **Research Rotations**

All PhD students are required to participate in laboratory rotations and enroll in SE 900 Research during their first academic year. This provides the students an

opportunity to gain exposure to more than one research area and to help in identifying a good match with a research advisor.

PhD students are expected to find a research advisor no later than the end of the second semester of matriculation; by April 30 for September matriculants or by July 31 for January matriculants. When a student and faculty member mutually agree on the research match and funding, that faculty member automatically becomes the student's academic advisor as well. The research advisor will be in charge of the student's research project and will help coordinate the student's schedule towards fulfilling all of the graduation requirements.

The following is an outline of the administrative issues and policies regarding SE 900:

- All PhD students must register for SE 900 in their first and second semesters of matriculation in SE.
- Students will register for a minimum of two credits in the fall and two or more credits in the spring semester, for a minimum of 4 credits, total. The course is graded Pass/Fail.
- To register, download a Directed Study/Independent Coursework Petition Form, fill out the top portion and draft the detailed summary, send it to the faculty member supervising your rotation for their review/signature, and then send the signed form to the Graduate Programs Manager at [se@bu.edu](mailto:se@bu.edu).
- The Graduate Programs Manager will register you for the course on receipt of the completed form.
- Rotations generally last 6-8 weeks.
- To do a rotation with a faculty member who does not have a primary or secondary appointment in SE, students must submit a Graduate Petition and receive permission from the SE Graduate Committee (see Forms section).

## **PhD Funding, Overview**

PhD students typically receive funding support in the form of BU Doctoral Fellowships (Dean's, MSE, Graduate Teaching Fellowships, Photonics, etc.), Training Grant Fellowships, Doctoral Research Fellowships and other external Fellowships (NSF, NIH, foreign government fellowships or other foundations).

First-year PhD students with one academic-year BU Fellowships (Dean's, MSE, GTF, etc) should secure a funded Doctoral Research Fellowship no later than the end of their first academic year; April 30 for September matriculants or July 31 for January matriculants.

## **Appointment Requirements for Stipends**

A PhD student's stipend rate is based on progress towards the degree.

- **The base stipend** is \$41,373 per year.
- **Following successful completion of the Qualifying Exam and Math Requirement, the annual stipend will be increased by 10% to \$45,510.** This increase usually becomes effective at the beginning of the month after the milestone is reached, depending on the policy of the funding department source; division students are generally supported by faculty grants which are administered by their primary department so this can vary.
- **Students must be physically on campus to receive a stipend**, which will be paid weekly every Friday, and will be subject to withholding taxes and reported as income to the IRS by the University. The University will provide students with a full tuition scholarship and student fees, which are not taxable to the recipient (26 USC Section 117(a)). It will not cover the cost of a Sports Pass or any late fees assessed as a result of late registration.
- **The University will also credit the student's account for the cost of individual participation in the Boston University Student Health Insurance Plan (SHIP) at the Basic level.** A credit for half the cost of SHIP at the Basic level will be applied directly to the student account at the beginning of the academic year. For additional information, please refer to this link. If the student has health insurance from another source, the student should file a waiver on the Student Link by selecting "Money Matters," then "Medical Insurance." Please visit the Student Health Services website and select "Waiving SHIP" to view the comparable coverage requirements. Students may waive enrollment in SHIP no later than September 20, 2024, provided their plan meets all the listed requirements.
- **As a condition of the appointment, students are required to be registered every semester (including summers) and to do so by the published registration deadlines, maintain Good Academic Standing, and continue to make satisfactory progress** in research and duties as a Doctoral Research Fellow. Failure to register by the indicated deadlines may cause the appointment to be terminated and delay payment of the weekly

stipend. Please also note that it is expected that efforts will be fully directed towards research and coursework. As such, during the period of the appointment, additional employment at Boston University is very limited, and employment outside Boston University is not allowed.

## PhD Funding, Rates, Semester Hiring Deadlines

The College of Engineering 2024-2025 Rates are:

- **Base Rate:** 795.63 per week, \$3,447.75 per month, \$41,373 per year
- **Post-Candidacy Rate:** \$875.19 per week, \$3,792.50 per month, \$45,510 per year. Stipend increases will be implemented no later than the beginning of the next semester (spring, fall, or summer) following eligibility.

### Semester Hiring Deadlines:

- **Fall Payroll:** Continuing students must be registered and have a DRF by July 1 in order to be set up for the Fall semester on time. New students must fill out I-9 and W-4 paperwork in order to be set up on payroll for the Fall semester on time.
- **Spring Payroll:** Students must register by December 1 and have a DRF commitment by November 1 in order to be set up for the Spring semester on time.
- **Summer Payroll:** All students must register for Fall by April 1 and have a DRF commitment in order to be set up for Summer Payroll on time.
  - First Year Students must have a research advisor and funding secured by April 30.
  - PhD students graduating in September must register for 2 credits of research in SUM1.

If you believe you should have been paid and were not, immediately contact the Graduate Programs Manager at [se@bu.edu](mailto:se@bu.edu) for assistance in correcting the payroll error.

## PhD Funding, Stipend Types

**Service Stipends** include Doctoral Research Fellows (DRF) and Graduate Teaching Fellows (GTFs). Service stipends are paid weekly on Friday.

**Non-Service Stipends** include Dean's Fellows (DFs), Division Distinguished Fellows, and some externally funded fellowships, are paid monthly on the 4th Friday of the month.

Students on one-year non-service stipend appointments should expect to transition to a Service Stipend, with weekly pay, starting the first or second Friday in May.

## PhD Funding, Taxes

### Non-Service Stipend Recipients

Non-Service Stipend recipients will not receive a W-2 for the period of the award. Non-service stipends include the Dean's Fellowship, Clare Boothe Luce Fellowship, or other Non-Service Division Fellowships. Keep this in mind for your taxes for both years.

- [Click here for further information and click again on "4\) Financial Activities and Services Training \(FAST\) sheets"](#).
- Click here for [Click here for Payroll Resources information](#)".

### International Students, Tax Set-up and Tax Treaties

Depending on a student employee's country of origin, a student may be eligible to sign a tax treaty. Otherwise, international students are asked to fill out and submit a Form W-4 to the Student Employment office. Please read the [International Taxation Set-Up Procedure](#) and follow the instructions to ensure you are taxed at the proper rate.

The tax treaty process must be completed every year.

Please refer to the International Students and Scholars Office (ISSO) website for further information about [U.S. Tax Information](#).

## **International Students, General Acknowledgement**

International Students understand that their visa and work-permission status must be up to date before they can begin work. They further understand US visa regulations prohibit any additional work, either on or off campus, during the duration of the DRF appointment.

## **US Citizens and Permanent Residents, General Acknowledgement**

US Citizens and Permanent Residents understand that the Doctoral Research Fellowship is a form of financial aid and it may affect eligibility for certain need-based funds, including but not limited to: Direct Loans, Federal Work-Study, and Perkins Loans. Students also understand that if they have already received need-based funds prior to the DRF appointment, terms of their financial aid package may be adjusted.

## **PhD Funding, Summer Tax Withholding**

PhD students must register for MS 900S or MS 991S for the Summer I term (2 credits) prior to the start of the summer session.

Students funded on DRFs and fellowships other than NIH will have FICA taxes withheld from their paychecks during the summer (May, June, July and August). [The Student Employment Office outlines the FICA tax withholding and rebate criteria](#) on their website.

## **SE PhD Travel Award**

SE has a limited number of Student Travel Awards to defray the cost of attending a conference or other worthwhile meeting related to a student's research. The student must be an author or coauthor of a paper accepted for presentation and the paper must be included in the conference/meeting program. The student must also be the



one who presents the paper at the conference/meeting. Every Division student who has passed their PhD qualifying exam is eligible for a Student Travel Award.

The student's advisor should nominate the student for an award before the travel event occurs by sending a message to the Associate Head, Professor Hua Wang. The message should be accompanied by:

- (a) a copy of the paper abstract, and
  - (b) evidence that the paper is included in the conference/meeting program (e.g., web site containing the program or a page showing where the paper is scheduled in the program).
1. Each student is allowed one award per calendar year.
  2. The award will be a reimbursement of actual expenses up to a limit of \$1,500.00 per student.
  3. Awards will be made on a first-come, first-served basis during the year.
  4. If more requests are received than our budget allows, then the Head and Associate Head will make selections based on the students' qualifications, and with priority given to first-time applicants and students who are still early in their research and can benefit most by attending a conference/meeting.
  5. On completion of travel, the student will submit receipts using the Division Business and Travel Expense Report form.

## **Teaching Practice Requirement**

All SE PhD students are required to teach for two semesters. Typically the first teaching assignment (ENGSE 801) is during the second year and the second assignment (ENGSE 802) is during the third year.

During the semester in which the student is enrolled in ENGSE 801 or 802, he/she may only register for 8 credits (ENGSE 801 or SE 802 plus 4 credits of SE 900). Students may take a structured course while teaching only if they receive permission from their research advisor (credit limit would then be 10 – 4 for ENGSE 801 or ENGSE 802, 4 for the course and 2 for ENGSE 900).

## **PhD Candidacy, Math Requirement**

The PhD student achieves Candidacy upon successful completion of the SE PhD Qualifying Exam and the Math Requirement.

SE PhD students are required to fulfill the math requirement no later than the end of their fourth academic semester. The list of courses will be reviewed periodically by the SE Graduate Committee.

### **Post-BS students.**

Complete with grade B+ or better one of:

- Dynamic Systems Theory (SE/EC/ME501)
- Optimization Theory and Methods (SE/EC524)
- Stochastic Processes (EC505)
- Probability with Statistical Applications (EK500)
- Dynamic Programming and Stochastic Control (SE/EC/ME710)
- Advanced Stochastic Modeling and Simulation (SE/ME714)

### **Post-MS students:**

- Post BS requirement or
- Submit evidence of successful completion B+ or better of equivalent course as determined by the SE Graduate Committee.

## **PhD Candidacy, Subject Qualifying Examination**

The PhD student achieves Candidacy upon successful completion of the SE PhD Subject Qualifying Examination and the Math Requirement by the end of the third semester.

All students are expected to attempt the examination at the completion of two semesters and must pass within three semesters. Students must demonstrate they have an appropriate level of preparation for doctoral studies and their degree of understanding of systems fundamentals by passing the SE Qualifying Exam.

**Timing:** The SE Qualifying Exam is offered during the early summer, usually on a Tuesday and Thursday between graduation and Memorial Day, following the first academic year in the graduate program.

**Coverage:** The exam consists of three topical sections. Students select three of the following five sections:

- Dynamic Systems Theory (SE/EC/ME 501)
- Continuous Stochastic Processes (EC505) or Discrete Stochastic Processes (EK500 and SE/ME 714)
- Optimization (SE/EC 524)
- Dynamic Programming and Stochastic Control (SE/EC/ME 710)
- Nonlinear Systems and Control (SE/ME 762)

**Nature of the Examination:** The exam will have a 3-hour written component and a one-hour oral component, typically within a few days to a week of each other.

The written examination is closed book.

For the oral part, students will be asked to appear before the examination committee to (1) make a 20-minute research presentation related to one of the research rotations, and (2) answer questions. The questions will be on the research presentation, the student's academic background and may include questions that arise from the written part of the exam. The department will provide guidance for students to prepare for the oral qualifier exam towards the end of the spring semester.

**Results:** A student has to pass both the written and oral portions of the examination. Results from the Exam as a whole are evaluated by the SE Graduate Committee. In the event that a student fails all or part of the exam, potential outcomes include remedial coursework or an opportunity for a second oral exam on all or part of the material.

Failure of a second attempt at the qualifier exam: There is no automatic recourse for this outcome. The student may apply to transfer to the MS program or MEng program.

### **Sample Exams**

May 2024

May 2023

May 2022

## **Pre-Prospectus Requirement, Advanced RCR**

All College of Engineering PhD students are required to complete the [Advanced Responsible Conduct of Research](#) program prior to completing the Prospectus. The Advanced RCR program includes an online module through CTI and the one-credit RCR course, ENGEK 800. PhD candidates are required to complete the Responsible Conduct of Research (RCR) requirement before they can receive the post-prospectus stipend rate increase.

## **Prospectus Defense**

By the end of the sixth semester following matriculation, PhD candidates are required to form a Prospectus Committee and defend a dissertation prospectus. A Prospectus Defense will be scheduled by the student. A Prospectus is defined as a public oral presentation of the proposal is held to describe the research and demonstrate the student's preparation.

The Prospectus Defense Committee is charged with assessing the appropriateness of the research problem and the student's preparation, based on the written proposal and the oral presentation. The Prospectus Committee must approve that the Prospectus is at a stage appropriate for scheduling the examination via their signature on the PhD Prospectus Defense form.

### **Committee**

The PhD Prospectus Defense Committee must consist of at least four (4) members.

The student's research advisor will be the Chair of the prospectus committee but will not be a voting member of the committee. Membership of the Prospectus Committee constitutes the nucleus of the Final Oral Thesis Examination Committee (see Dissertation section).

### **Special Service Appointment Form**

If a researcher from outside the University serves on a PhD student's committee, a Special Service Appointment Form (see Forms section) must be completed and submitted to the Division Graduate Programs Manager at [se@bu.edu](mailto:se@bu.edu) for division approval. The completed form and a copy of the person's curriculum vitae, with the Associate Chair for Graduate Studies' signature, will then be submitted to the Graduate Programs Office.

### **Dissertation Topic**

A research problem is selected after initial discussions between the research advisor and the student. The development of a dissertation topic is typically a cooperative effort between the student and research advisor. Commonly, the advisor initially suggests a problem to be addressed, but the student is expected to contribute ideas and thought as to how to approach the problem.

### **Written Prospectus**

Before undertaking this phase, the student should consult the [Guide for Writers of Theses & Dissertations](#) for formatting requirements while preparing the dissertation and its abstract. The Prospectus document should include a signature page, a statement of the problem to be investigated, its background and significance, methods and approach(es) to be followed for its resolution, preliminary results, anticipated timetable for completion and pertinent bibliography.

The format is similar to a typical research proposal.

- The prospectus should specifically document the anticipated contribution of the work to the body of knowledge
- A separate page listing the proposed title, author's name, research advisor's name and an abstract of approximately 150 words

- The prospectus should address the anticipated contribution of the work to the body of knowledge and the format must be similar to that of proposals submitted to a Federal Agency
- There is a 20 page (single-spaced) limit on the scientific portion of the proposal, which includes tables and figures but does not include the list of references
- The prospectus should include an up-to-date copy of the student's curriculum vitae (not part of the 20-page limit)

Prior to scheduling the Prospectus Defense, the student must provide a copy of the Prospectus document to all members of the Prospectus Defense Committee. The student must also confirm with the committee members a date, time and location for the examination.

### **Scheduling the Prospectus Defense**

1. [Register Your Prospectus Defense Online at least two weeks prior to defense date.](#)
1. **Forms.** The Graduate Programs Manager will create and distribute the appropriate form(s) to you and/or your committee members via AdobeSign. The committee's electronic signatures indicate that they have read the Dissertation document and approve that the examination be scheduled.
2. **Publicity & Catering:** The Division Graduate Programs Manager and Communications Manager will be responsible for providing publicity and ordering the catering (coffee service) for the student's Prospectus Defense to the SE students and faculty.

### **Conduct and Length of the Oral Examination**

The faculty research advisor should chair the Prospectus Defense, beginning with the introduction of the PhD student and his/her academic background. The student's presentation should last 20 to 30 minutes. The student should be able to defend his/her knowledge of the mathematical, physical and analytical tools to be used and how they may relate to other areas outside of his/her particular project. During this period, Prospectus Committee members or the audience may ask questions. The chair should guard against digressions and inappropriate questioning during the presentation. Following a reasonable question period, the student and the audience are dismissed and the Prospectus Committee remains to complete its assessment of the prospectus proposal examination.

## **Assessment**

The Prospectus Defense Committee recommends that the student should pass, fail, or be given additional requirements (e.g., an additional written progress report or additional studies) to be completed no later than one year from the Prospectus Defense examination. In the case of failure, the Prospectus Committee recommends the appropriate action: a recommendation of failure may include a suggestion that the student re-take the Prospectus Defense exam or that the student be terminated from the PhD program. In the latter case, the student has the option of pursuing an MS or M.Eng degree but must complete all the requirements for that degree.

**All Post-Bachelor's PhD degree students should declare a Master of Science degree** when they successfully complete their PhD Prospectus Defense. This is not automatic and the student needs to complete an MS Program Planning Sheet and apply online for graduation. See SE Masters Handbook.

If a student's Prospectus Defense deadline has passed, he/she needs to petition the SE Graduate Committee for an extension, including indicating a timeline for completion of the prospectus.

## **Reporting on Results**

The chair of the Prospectus Defense Committee will complete the "Prospectus Defense Results" section on the PhD Prospectus Defense form. If the student is required to meet certain conditions, those conditions should be listed on a separate sheet and attached to the form. Those conditions should also contain time frames for completion. The chair then signs the form and forwards it to the Division Graduate Programs Manager (who will be responsible for submitting to the Associate Chair for Graduate Studies for final approval).

Before the Prospectus Defense ends, the committee must indicate on the PhD Prospectus Defense form the date for the next committee meeting (at least once in the next 12 months) and indicate expected milestones for the next post-prospectus thesis committee meeting. Required revisions to the proposal should be completed satisfactorily before a final "Pass" grade is given.

## **Petition to Extend Candidacy**

By the end of the sixth semester following matriculation, PhD candidates are required to form a Prospectus Committee and defend a dissertation prospectus. Students may submit a petition to extend Candidacy and it should include the following material:

- Major reason(s) for delay
- How those delays have been resolved
- Evidence of research progress
- Detailed timeline and evidence that timeline can be adhered to
- Letter of support from advisor that addresses these issues

The College of Engineering Graduate Committee will determine whether or not a candidate may extend his/her participation in the PhD program. More than one petition to extend the completion date of degree requirements is rarely approved, so the student should be very sure that they would finish their dissertation by the date they propose on the extension.

## **PhD Annual Progress Report**

Dissertation committee meetings are to be held on a regular basis in order for the student to report progress and the committee to provide feedback. As a minimum, committee meetings will be held annually. The student will submit a PhD Annual Progress Report annually, detailing progress towards milestones and the next planned steps and this will be sent to the Advisor for review. It is the responsibility of the student to contact the committee members and schedule the committee meetings.

## **Post-Prospectus Credits, Timeline**

After passing the Prospectus Defense, students will enroll for eight credits of SE 991 Dissertation each semester until the total credit requirement is met (64 credits for Post-BS, 32 credits for Post-MS). Once the student has fulfilled the total minimum



credits requirement, he/she will register for two SE 991 credits each semester until they graduate.

A PhD candidate has a maximum of five (5) years after passing the qualifying exam to complete all degree requirements. If the program requirements are not completed within five years, the student must petition the College of Engineering Graduate Committee for an extension using the College of Engineering Graduate Petition Form.

## **Dissertation, Requirements**

### **Written Dissertation**

Candidates shall demonstrate their abilities for independent research and scholarship by completing a doctoral dissertation in their field of study. The dissertation will be primarily guided by the first reader (advisor), with the advice of the other members of the Dissertation Defense Committee. The dissertation should represent original scientific/engineering contributions that are appropriate for publication in a recognized peer-reviewed journal. The dissertation is defended at a presentation open to the entire BU community.

Refer to the [Guide for Writers of Theses & Dissertations](#) while preparing the dissertation and its abstract. These must conform to the requirements of the University Microfilms International.

Although students will have an opportunity to make final revisions to the dissertation and abstract after their Final Oral Examination (Dissertation Defense), they should not regard their Final Oral Examination version as a “rough draft”.

### **Dissertation Defense, Final Oral Examination**

The Dissertation Defense is a public presentation of the candidate’s dissertation. The presentation should clearly define the problem, describe the method(s) used to solve the problem, report results and establish significance of the results. The purpose of the Final Oral Examination is to ensure that the dissertation constitutes a worthy contribution to knowledge in the candidate’s field and that the candidate has attained an expertise in his/her field of research specialization.

## **Dissertation Defense, Committee**

In preparation for the Dissertation Defense, it is the candidate's responsibility, in conjunction with that of his/her research advisor, to appoint a Dissertation Defense Committee. This committee usually consists of the faculty members who participated in the Prospectus Defense, and have followed the student's progress and annual progress meetings. The committee consists of five (5), including 4 readers and a Chair. The Chair may not also serve as a reader. The Division Graduate Programs Manager will appoint the chair for the Dissertation Defense, in consultation with student and advisor.

## **Special Service Appointment**

If a researcher from outside the University serves on Dissertation Defense Committee, a Special Service Appointment Form (see Forms section) must be completed. The completed form and a copy of the person's curriculum vitae, with the Associate Chairman for Graduate Studies' signature will be submitted to the Graduate Programs Office after receiving departmental approval. This form does not have to be re-submitted if it was approved for the Prospectus Defense.

## **Dissertation, Scheduling**

It is the student's responsibility for scheduling a date, location and time, and a Defense chair in addition to the four Dissertation Defense Committee members for the examination. When permitted, conference room reservations can be requested via the SE website

Before registering the final defense, the candidate must have provided a copy of the dissertation document to all members of the Final Oral Examination committee. When they sign the electronic abstract and defense forms noted below, they are certifying that 1) that they have been provided a copy of the dissertation and 2) agree that it is ready to be defended.

## **Scheduling the Prospectus Defense**

2. [Register the Dissertation Defense Online at least 3 weeks prior to defense date.](#)
3. **Forms.** The Graduate Programs Manager will create and distribute the appropriate form(s) to the student and/or committee members using AdobeSign. The committee's electronic signatures indicate that they have

read the Dissertation document and approve that the examination be scheduled.

- a. **Abstract Form:** Completed by the Student and Advisor, reviewed by Associate Division Head.
  - b. **Final Defense Form:** Completed by the Student, Committee, Graduate Programs Manager, Chair, and Associate Division Head.
4. **Publicity & Catering:** The Division Graduate Programs Manager and Communications Manager will be responsible for providing publicity and ordering the catering (coffee service, other refreshments).

## **Dissertation, Defense**

### **Conduct and Length of the Final Oral Exam**

The faculty research advisor or chair should introduce the candidate and include a brief academic background description. The candidate should restrict the length of the examination to approximately one-hour. During this period, either the Dissertation Defense Committee members or audience may ask questions of clarification. The chair should guard against digression and inappropriate questioning during the presentation. After the presentation, a reasonable period of questioning will follow, and then the audience will be dismissed. The Dissertation Defense Committee may wish at this time to ask additional questions of the candidate. Following this additional questioning, the candidate should be excused and the committee should complete its assessment of the examination.

### **Assessment**

The Dissertation Defense Committee is charged with assessing completeness of the research, contribution to knowledge, and the candidate's mastery of his/her research area, based on the written dissertation and the oral presentation. Vote may be ballot or voice. A unanimous vote is required for a candidate to pass.

It is the Chair's responsibility to call the candidate back after the Dissertation Defense Committee has reached a decision. The chair will advise the student of the committee's decision. At this time the candidate will be advised of any changes that must be made to the final title, abstract or dissertation document, with a deadline provided by the Dissertation Defense Committee.

## Reporting

The College's PhD Final Oral Examination Form must be completed at the examination, with specific indication of whether the title, abstract and dissertation are acceptable as they stand.

If ALL requirements are acceptable, the committee members may sign the signature pages of the dissertation. If there is some rework to be done, this is to be noted on the Final Oral Exam form or by email to the Division Graduate Programs Manager. Dissertation Defense Committee members should sign off on the form but will refrain from signing the signatures page of the dissertation until all conditions have been met. Engineering PhD students may use DocuSign to electronically collect signatures (see below, Library Submission).

## Dissertation, Library Submission

Boston University students completing a doctoral dissertation as a requirement for their degree must submit a PDF copy of their manuscript to the Boston University Libraries so as to preserve a record of their scholarly achievement and to share the benefits of their research with other scholars. The dissertation will be deposited into both ProQuest Dissertations & Theses Global™ and OpenBU Boston University's open-access database.

- Prepare the manuscript for library submission following the guidelines in this [Research Guide](#).
- Review the final draft of your thesis/dissertation with [theses@bu.edu](mailto:theses@bu.edu) as early as possible. DO NOT wait until the published submission deadline.
- Submit your thesis/dissertation electronically via the [ProQuest ETD Administrator](#) only after your draft has been approved by [theses@bu.edu](mailto:theses@bu.edu).
- College of Engineering Doctoral candidates can now have their readers e-sign the [dissertation approval page using DocuSign](#).
- Complete the [BU Doctoral Exit Survey](#) and the [NSF Survey of Earned Doctorates](#) (SED). Upon completion of the BU Exit Survey, there will be link to redirect you to the NSF SED. You must send [enggrad@bu.edu](mailto:enggrad@bu.edu) a copy of the SED completion certificate you receive. NOTE: Both surveys must be received to officially award your degree.

## Helpful Links

- Thesis prep videos: Several [videos](#) cover the ETD administrator process and formatting.
- Microsoft Word template: [Dissertations template](#) or [Thesis template](#) prepared by the library.
- Sample formats: A set of [samples](#) illustrates proper submission formats.
- Open access: BU policy is that scholarship, including BU theses and dissertations, should be made openly accessible so that the benefits of research can be widely shared.
- This [FAQ](#) discusses factors to think about if you are considering an embargo.

## The Division Graduate Programs Manager will:

- provide departmental electronic approval of the ETD submission upon collection of the 1) signature page and 2) title page, and
- order bound copies of the dissertation for the division and the advisor. Students are advised to order a bound copy directly from ProQuest if desired.

## PhD Internship Experience

PhD students who wish to engage in a paid, professional development internship, that is directly related to the student's field of study, must have completed two semesters in their current program, must submit an MSE PhD Internship Experience Approval Form and register for MS 810 PhD Internship.

- Graded Pass/Fail
- End of semester report of activities required
- Maximum number of internship semesters will be set by the Division
- **Part-time** = 20 hours (or fewer) per week for at least 12 weeks (min. 180 hours). Students register for 2 credits of ENGSE 810 plus additional coursework/research.  
**Full-time** = minimum 30 hours per week for at least 12 weeks (min. 360 hours) must register for 4 credits of ENGSE 810.

## Process

- Please submit all required documents to the Division Graduate Programs Manager at [se@bu.edu](mailto:se@bu.edu) for Division Review.
- **International students:**
  - Need confirmation from the Graduate Programs Office, at [enggrad@bu.edu](mailto:enggrad@bu.edu), before requesting CPT approval on the ISSO Portal.
  - Must have CPT authorized BEFORE beginning work or placement.
  - See [College of Engineering Internship Guidance \(Engineering Practice and CPT\)](#) for further detail.
- The Division Programs Manager will register students for ENGSE 810 for the appropriate credits.

## Required Documents

- Offer Letter
- [SE PhD Internship Experience Approval Form](#)
- Your offer letter from the organization must include:
  - Internship position, compensation, and outline of responsibilities
  - Name and contact information of internship supervisor
  - Start and end dates of the internship
  - Location of internship (in-person, remote or hybrid).
  - Work hours (full-time or part-time).
  - Your internship proposal must include:
    - Work to be accomplished during the internship.
    - Why this work is relevant to your program of study.

## Forms

### Division Forms & Links

- [Career & Professional Development Resources](#)
- [Data Science Mentoring Circles Program](#)
- [Division Annual Progress Report Form](#)
- [Division Business and Travel Expense Report](#)
- [Division Defense Registration Form](#)
- [Division PhD External Funding Bonus Award](#)
- [SE PhD Internship Experience Approval Form](#)
- [SE Masters Handbook](#)
- [SE PhD Handbook](#)

- See also, [SE Student Resources](#) for Finance & Operations, Course Offerings, Poster Printing and Business Cards

## **College of Engineering Forms & Links**

- [Graduation Deadlines](#)
- [Graduation Application portal for Masters and PhD Students](#)
- [College of Engineering Resources and Forms](#)

Childbirth and Adoption Accommodation Form

Graduate Petition Form

Directed Study/Independent Coursework Petition Form

Special Service Appointment Form

Transfer Credit

Graduate Application

Program Change Form

Withdrawal and Leave of Absence Forms

Add/Drop Form

Registration Form

PhD Readers' Approval Form (Dissertation Signature Page)

## **Apply to Graduate**

The College of Engineering Application to Graduate can be completed in one to three steps, depending on whether you are applying to graduate with your post-Bachelor Masters (on completion of PhD Prospectus Defense) or PhD degree.

For additional details on requirements and submission dates, you can refer to the [Graduation Deadlines](#).

### **Masters Application to Graduate**

- Download and fill out a Program Planning Sheet from the Masters Handbook: Forms tab
- Email your Program Planning Sheet to your advisor for review and electronic signature (see Forms, above, for link).
- Complete the [Graduation Application portal for Masters and PhD Students](#), upload your signed Program Planning Sheet.

### **PhD Application to Graduate**

- Complete the [Graduation Application portal for Masters and PhD Students](#), upload your signed Program Planning Sheet.