Interdisciplinary Engineering, PhD (Boston)

130 Snell Engineering Center
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The College of Engineering offers an interdisciplinary engineering Doctor of Philosophy degree involving substantial work in two or more academic departments or disciplines. This is an individually designed program for the student who wishes to pursue graduate studies in an area that substantially overlaps two or more units. In such cases, that student may design, in consultation with their faculty advisor(s), an interdisciplinary program. The program will correspond in scope and depth to Northeastern University's established degree standards but need not agree exactly with the regulations of individual units. Individually designed interdisciplinary degree programs must be approved by the appropriate graduate office(s).

The interdisciplinary engineering program admits applicants into the PhD program either directly after earning a suitable bachelor's degree (i.e., direct entry) or after earning a suitable master's degree (i.e., advanced entry). Upon acceptance into the program, an applicant is designated as a doctoral student. This designation is changed to doctoral candidate upon successful completion of the doctoral qualifying requirements as well as all the required coursework.

Program Requirements

In order to pursue an individually designed interdisciplinary engineering graduate program, a student must have been accepted into the interdisciplinary engineering program by an approved graduate program that will serve as the administrative home unit for the interdisciplinary engineering program:

- Department of Bioengineering (https://catalog.northeastern.edu/graduate/engineering/bioengineering/)
- Department of Chemical Engineering (https://catalog.northeastern.edu/graduate/engineering/chemical/)
- Department of Civil and Environmental Engineering (https://catalog.northeastern.edu/graduate/engineering/civil-environmental/)
- Department of Electrical and Computer Engineering (https://catalog.northeastern.edu/graduate/engineering/electrical-computer/)
- Department of Mechanical and Industrial Engineering (https://catalog.northeastern.edu/graduate/engineering/mechanical-industrial/)

Students who have been dismissed from any of the COE departments will not be able to enroll into the interdisciplinary engineering PhD program with the department from which they were dismissed as either home or participating department.

The interdisciplinary engineering PhD program requires a commitment from a Northeastern faculty member to serve as the student's primary faculty advisor and chair of their interdisciplinary engineering PhD committee. The primary faculty member is affiliated with the program's administrative home unit unless otherwise approved by the administrative home unit. The PhD advisory committee must be assembled within the first semester of the program, and at least two units must be represented on the committee. The committee must include at least one faculty co-advisor from all participating academic units and otherwise conforms to the rules of the home unit. This committee will be responsible for overseeing the completion of the degree requirements. It will also be responsible for the administrative elements of the program, such as the monitoring of satisfactory progress; the design and grading of the preliminary and comprehensive exams, if applicable; graduation clearance; etc. This interdisciplinary committee is also responsible for an annual review of the progress of the student and for reporting this progress to the administrative home unit on an annual basis.

Supplementary Interdisciplinary Engineering PhD Program Forms

Successful application and admission to the interdisciplinary engineering PhD program requires a completed Program Preliminary Study Plan, available on the COE Graduate Student Services Forms website. This form provides a memorandum of understanding for your proposed PhD including the primary departments and advisor(s), a brief description of the planned research, and explanation of the rationale for an interdisciplinary PhD program.

No later than one year postentry into the program, a completed and signed Interdisciplinary Program Plan must be submitted to the Graduate School of Engineering. This individually designed plan includes a list of courses to be taken, a description of the qualifying and comprehensive examination process to be used, a timeline, and any other requirements of the program. This form can be found on the COE Graduate Student Services Forms website.

Qualifying Examination and Degree Candidacy

Interdisciplinary engineering PhD students must register for and pass the doctoral qualifying examination of their home department. In some cases, if deemed necessary by the interdisciplinary committee, students may be required to take some part of the doctoral qualifying examinations of the other department(s) involved with the student's program of study. To qualify as an interdisciplinary engineering doctoral candidate, students must successfully complete the doctoral qualifying examinations in addition to all their required coursework.

Dissertation

Students must present their dissertation proposal no more than 12 months after successfully completing their doctoral qualifying examinations. In addition, the presentation of the dissertation proposal and the actual dissertation defense shall be no less than six months apart. Interdisciplinary engineering PhD students must follow the dissertation guidelines of their home department.

Residency Requirement

After achieving PhD candidacy, students must complete at least two successive semesters of full-time study on campus to establish residency. Successful completion of the total interdisciplinary engineering PhD program depends on meeting department academic milestones and academic expectations.

Language Requirement

Each doctoral candidate must be proficient in technical writing and oral presentation in the English language. The qualifying examination committee may require additional coursework in the case of any deficiency in these areas.

Program Requirements

Direct Entry

Complete all requirements listed below unless otherwise indicated.

Milestones

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Interdisciplinary Engineering PhD Program Preliminary Study Plan Interdisciplinary Program Plan Dissertation committee formation
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Doctoral qualifying exams (both written comprehensive and oral area exams)
Annual review
Dissertation proposal
Dissertation defense

Requirements

Code	Title	Hours
A minimum of 48 semester hours of academic coursework is required. Consult your faculty advisors for acceptable courses.		48

Dissertation Course Requirements

After achieving PhD candidacy by passing the qualifying exam, the doctoral candidate, in consultation with their research advisor, must register in two consecutive semesters according to their academic home unit:

Code	Title	Hours
BIOE 9990	Dissertation Term 1	
or CHME 9990	Dissertation Term 1	
or CIVE 9990	Dissertation Term 1	
or EECE 9990	Dissertation Term 1	
or IE 9990	Dissertation Term 1	
or ME 9990	Dissertation Term 1	
BIOE 9991	Dissertation Term 2	
or CHME 9991	Dissertation Term 2	
or CIVE 9991	Dissertation Term 2	
or EECE 9991	Dissertation Term 2	
or IE 9991	Dissertation Term 2	
or ME 9991	Dissertation Term 2	

Program Credit/GPA Requirements

48 total semester hours required
Minimum 3.000 GPA required

Advanced Entry Program Requirements

Advanced Entry

Complete all requirements listed below unless otherwise indicated.

Milestones

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Interdisciplinary Engineering PhD Program Preliminary Study Plan Interdisciplinary Program Plan Dissertation committee formation Doctoral
 qualifying exams (both written comprehensive and oral area exams) Annual review Dissertation proposal  Dissertation defense
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Requirements

Code	Title	Hours
A minimum of 20 semester hours of academic coursework is required. Consult your faculty advisors for acceptable courses.		20

Dissertation Course Requirements

After achieving PhD candidacy by passing the qualifying exam, the doctoral candidate, in consultation with their research advisor, must register in two consecutive semesters according to their academic home unit:

Code	Title	Hours
BIOE 9990	Dissertation Term 1	
or CHME 9990	Dissertation Term 1	
or CIVE 9990	Dissertation Term 1	
or EECE 9990	Dissertation Term 1	
or IE 9990	Dissertation Term 1	
or ME 9990	Dissertation Term 1	
BIOE 9991	Dissertation Term 2	
or CHME 9991	Dissertation Term 2	
or CIVE 9991	Dissertation Term 2	
or EECE 9991	Dissertation Term 2	
or IE 9991	Dissertation Term 2	
or ME 9991	Dissertation Term 2	

Program Credit/GPA Requirements

20 total semester hours required
Minimum 3.000 GPA required