DEGREE PROGRAMS

PH.D. IN COMPUTER SCIENCE PROGRAM

ADMISSION REQUIREMENTS

PROGRAM REQUIREMENTS
ADMISSION REQUIREMENTS FOR THE PH.D. IN COMPUTER SCIENCE

A student can be admitted into one of the following graduate degree programs:

- Master of Science in Computer Science
- Ph.D. in Computer Science

A student can also be admitted as a Graduate Special Student in which case the student is a non-matriculated student, that is the student is not in a degree program.

Each program and admission as a Graduate Special Student requires a formal application and accompanying materials. Deadlines for the receipt of admission materials (application form, application fee, and supporting documents) for the degree programs are **June 1** and **November 1** for enrollment in the Fall and Spring semesters, respectively. If admission materials are received after these deadlines, the Admissions Committee may not be able to process the application before the beginning of the semester. Students may also apply for admission in the summer semester. Review of completed applications for financial aid awards will begin on Dec. 15 and continue until all monies have been allocated. Students who are applying for Teaching Assistantships should submit the CS 010 form by March 1 or October 1 along with a resume and cover letter to the Associate Chairman. Applications for Graduate Special Students should be completed before registration begins for the semester of admission. All applications except for Graduate Special Students are evaluated by the Graduate Admissions Committee of the Department.

The following sections describe the minimum requirements for the Ph.D. program. Satisfying the minimum requirements does not automatically imply admission.

APPLICATION DOCUMENTS REQUIRED

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Application Documents required for the Ph.D. in Computer Science

Students must complete an application for admission as a matriculating graduate student. Along with the application, official or certified copies of all transcripts must be submitted along with at least two letters of recommendation. In addition, applicants from countries whose native language is not English must submit an official TOEFL exam score, unless they have received a degree from an accredited U.S. institution. All applicants must also submit scores from the GRE general exam.
ADMISSION REQUIREMENTS FOR THE PH.D. IN COMPUTER SCIENCE

Requirements for Admission into the Ph.D. in Computer Science Program

1. An M.S. degree in Computer Science with a minimum GPA of 3.5/4.0 and a minimum undergraduate GPA of 3.0/4.0.

2. For non-English speaking applicants without a U.S. degree, a minimum TOEFL score of 550 is required. If the TOEFL score is less than 600, the applicant is required to take the English Proficiency Exam administered by the IIT Humanities Department. Graduate students with degrees from English-speaking countries are not required to submit the TOEFL score. Please check with the Graduate College for details. Note that Puerto Rican students must submit the TOEFL score.

3. All applicants for Regular graduate admission (degree-seeking) must submit GRE scores prior to admission. An applicant for the Ph.D. program must have a total GRE score of 1600, and should also have a minimum placement in the 70% percentile in the Quantitative section of the GRE general test.

4. Three (3) letters of recommendation.

Applicants with an M.S. degree from a foreign university must make a formal petition to transfer the M.S. degree for credit in their graduate program at IIT.
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Overview

The doctoral program is designed for those students who have an interest in pursuing an academic or industrial research career. The doctoral student is expected to demonstrate a mastery in several areas of computer science. In addition the student is required to make a significant contribution to the field of computer science by working on an original research problem with a committee of faculty. Each student is required to (1) pass the Ph.D. qualifying exam in order to be admitted to candidacy, (2) pass the Ph.D. comprehensive exam where the proposed research is presented. This is followed by the culminating Ph.D. thesis which results in an original research contribution and must be defended. The degree normally requires three to four years beyond the master's degree for full-time students. Part-time students can also enter the program but will need more time to complete the degree.

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Summary of Ph.D. Program Requirements

The Ph.D. degree requirements are as follows:

1. A minimum of 96 credit hours (advisor approved).
2. At least two semesters in residency.
3. A Ph.D. Qualifying Examination.
6. A GPA of at least 3.0/4.0 in the program of study.
7. Four courses in the core areas of Systems, Theory, Programming, and Applications.
8. One credit hour of Doctoral Seminar Course - CS 695

The Ph.D. program must adhere to the following restrictions:

- A minimum of 24 credits of the 500-level Computer Science courses at IIT beyond the M.S. program. This does not include CS 591 or CS 597.
- A maximum of 8 credits of CS 597 beyond the M.S. program.
- A maximum of 12 credits of 400-level courses beyond the M.S. program.
- A minimum of 24 credits and a maximum of 32 credits of CS 691. Students are not allowed to take CS 691 before passing the Ph.D. Qualifying Examination.
- A Program of Studies (Form #401) must be filed by full-time students within 4 months of enrollment and by part-students before completing 12 credits in the Ph.D. program at IIT.
- The time limit for completing the Ph.D. requirements is 6 years after the Ph.D. Program of Study (Form #401) is filed.
- A maximum of 6 credits of short courses.

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Course Requirements

The Ph.D. Program requires a minimum of 96 semester hours of study (advisor approved) with a typical distribution of 32 credits from the M.S. degree, 32 course credits, and 32 research credits (CS 691). All courses must be approved by the academic advisor and are used to establish breadth and depth, that is, preparation for the qualifying exam and for research in a specific area.

University regulations allow students to include between 24 and 32 semester hours of CS 691 credit in the Ph.D. Program. Students may register for CS 691 as soon as they have qualified for candidacy in the Ph.D. Program.
Transfer of a M.S. Degree

A M.S. Degree in Computer Science from another college or university may be transferred to the Ph.D. Program for up to 32 semester hours of credit. This transfer of credit must be approved by the advisor.

A M.S. Degree in related areas is not transferable, but individual M.S. Computer Science related courses (up to 32 credit hours) may be transferred to the Ph.D. program (a grade of "B" or better is required in the transferred courses). Those courses to be transferred must be approved by the advisor.

Transferring a M.S. Degree from institutions outside of the United States is quite complex. Students who wish to do so should consult with the Admissions Committee about the details of this process.
Transfer of Post-Master’s Courses

Up to 16 semester hours of post-Master’s Computer Science related courses may be transferred from another college or university. Those courses to be transferred:

- must have been available for graduate credit at the institution at which they were taken,
- must not have been used toward another degree,
- must have been passed with a grade of "B" or better, and
- must be approved by the Computer Science Department’s Graduate Admissions Committee.
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Establishing a Program of Study

Every student in the Ph.D. Program must file a Program of Study (Form #401). Full-time students must file the Program of Study (Form #401) within four months after enrollment. Part-time students must file the Program of Study before completing 12 credit hours in the Ph.D. program at IIT.

The Program of Study is prepared after consultation with the advisor and lists all of the courses that a student plans to take as part of the Ph.D. Program (including courses that have been completed). This form must be signed by the advisor and the Department Chair (or an Associate Chair).

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A Program of Study may be modified through the submission of Form #406. Form #406 must be signed by the advisor and the Department Chair (or an Associate Chair). Changes in the program may not be approved by the graduate dean after the student has filled an application for graduation.
REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE

Qualifying Examination

The purpose of the Ph.D. Qualifying Examination is to ensure that candidates admitted to the Ph.D. program have enough breadth and depth of knowledge in the field of Computer Science, and help to determine whether they are capable of performing original research. Passing the exam involves:

1. Satisfactorily completing a Ph.D. qualifying project as specified by an academic advisor.
2. Obtaining a vote of "pass" during the computer science faculty meeting based on the project results and the student's record. These requirements are described below.

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Time Schedule for Taking the Qualifying Examination

Full-time students should take the Ph.D. Qualifying Examination during their first three semesters in the Ph.D. program. Part-time students should take this exam no later than the semester in which they complete 24 credit hours in the Ph.D. program.

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Qualifying Examination Format

The student is responsible for finding a faculty member who is willing to serve as their academic advisor for the Qualifying Examination. The faculty member will work with the student to define a Ph.D. qualifying project. The area of research is defined by both the student and the advisor. The scope and format of the qualifying project must satisfy the departmental standards (for details see the Ph.D. Qualifying Exam Preparation Guidelines). The purpose of the project is to determine the extent of the student's knowledge in the selected area and the student's ability to perform original research. If the student and the advisor are not able to establish the format of the Ph.D. qualifying project, the student may change the advisor.

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Formalizing the Results of the Qualifying Examination

Upon completion of the project, the student submits a CS 08 form signed by his/her academic advisor who indicates by his/her signature that he/she is willing to represent the student during the evaluation by the Computer Science faculty meeting. In most cases the academic advisor becomes the student’s thesis advisor.
Evaluation of the Qualifying Examination

All students who submit a CS 08 form will be evaluated during a faculty meeting at the beginning of the Fall or Spring semesters. The student must orally present the qualifying project during the faculty meeting. A result of pass/fail on the Ph.D. Qualifying exam is determined by vote of the faculty. The decision to pass/fail the student is based upon the following criteria:

- The student’s academic record
- The quality of the Ph.D. qualifying project
- The student's potential to complete a Ph.D. program successfully (sufficient evidence demonstrating the student’s potential must be presented by the student and/or his advisor).
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Deadlines for the Qualifying Examination

The CS 08 form and all exam related materials must be submitted at the beginning of the Fall or Spring semesters, respectively.

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Repeating the Qualifying Examination

Every student is given two opportunities to pass the Qualifying Examination.

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Taking CS 691

Students will not be allowed to take CS 691 before passing the Qualifying Examination.
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Ph.D. Comprehensive Examination (Defense of Ph.D. Research Proposal)

The University refers to this exam formally as the Comprehensive Examination. The purpose of the Research Proposal Examination is to ensure that the candidate has the background to carry out successful research in the chosen area and that the research problem is properly formulated and has sufficient scholarly merit. The student (in concert with the student's research advisor) must develop and orally present a research proposal containing a literature review (with bibliography), a proposed research topic, and a program of research based upon this topic. The research proposal must be written.

The student must request appointment of an examination committee using Form #301. The examination committee may consist of from four to seven members. It must include at least three full-time faculty members from the Computer Science Department and one full-time faculty member from another department in the University. Other committee members from inside or outside the University may be chosen. The student should consult with his/her research advisor concerning the makeup of the committee. Form #301 must be filed two weeks prior to the date of the examination, and the research proposal must be distributed by the student to each member of the examination committee at least one week prior to the date of the examination.

At the conclusion of the defense, the committee will report the result using Form #309 (this form must be signed by all of the committee members). Two additional copies of this form must be made, one for the student and one for the student’s file. The original is sent to the Graduate Records Office.

Should a student change research advisors, another Ph.D. Comprehensive Exam reviewing the student’s proposed research must be organized.

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Ph.D. Thesis Defense

Once the student’s research has been completed, a Ph.D. Thesis must be written. The resulting document must meet the standards set by the University. Students are advised to attend the thesis preparation seminar run by the Thesis Examiner early each semester. Aside from invaluable information, each student who attends this seminar will receive a copy of the thesis preparation manual.

The research project must be an original investigation of high quality, and the results must be submitted in the form of a dissertation whose contents meet the standards of recognized professional journals in the field. Therefore, before the Ph.D. thesis is defended, each student must submit a paper resulting from his/her Ph.D. research to a refereed journal or conference. The reviewers' comments have to be presented during the Ph.D. defense.

Before the thesis is defended, it must receive preliminary approval from the members of the student's examination committee. Each committee member should indicate preliminary approval by signing Form #501A. The student should schedule a meeting with the Thesis Examiner, who will conduct a preliminary review of the thesis. A properly formatted copy of the thesis and Form #501A should be brought to this meeting.

Each student must present an oral defense of his/her Ph.D. Thesis. The Thesis Review Committee is appointed in much the same way as the Ph.D. Comprehensive Examination committee. Once again, Form #301 is used (see the information regarding Form #301 given above). Form #301 must be filed two weeks prior to the date of the Ph.D. Thesis Defense. In addition, a thesis abstract must be given to the Computer Science Department and the Ph.D. Thesis Defense announcement must be posted one week prior to the date of the Defense. Note that it is the responsibility of the student to post the announcement. All Ph.D. Thesis Defenses are open to the public.

At the conclusion of the defense, the committee will report the result using Form #309 (this form must be signed by all of the committee members). Two additional copies of this form must be made, one for the student and one for the student's file. The original is sent to the Graduate Records Office.

Following the defense, the student should make the requested changes in the thesis and receive final approval of the thesis from the committee. Each committee member should indicate final approval by signing Form #501B. Once this has been completed, the student should meet with the Thesis Examiner, who will conduct a final review of the thesis.
REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE

Residence Requirements

University regulations require that each Ph.D. student must spend a minimum of two regular semesters in full-time study on campus. In special cases, two summers of research or other day graduate activity may be substituted for one of the two semesters. A full-time student is one who registered for at least 12 credit hours in a regular semester or six credit hours in the summer.
Applying for Graduation

Each student who expects to receive a graduate degree in a given semester must file an application for graduation in the Graduate College within 2 weeks of the start of the intended semester of graduation. No application will be accepted after that date and no changes in a Program of Study are allowed after that date. An application for graduation is good for only one semester. If the student fails to graduate in the intended semester, a new application must be filed for a later semester (no additional fees will be charged for filling a second application).

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Time Limit

Every student is given up to six calendar years to complete the Ph.D. Program. This time interval begins when the Ph.D. Program of Study (Form #401) is filed. Should this time limit expire, the student will be required to petition the Dean of the Graduate School to have the time limit extended. Such an extension will ordinarily entail additional examinations and fees.