Computers & Information Technology, MCIT

The Master of Computer and Information Technology (MCIT) program is a rigorous graduate-level program that gives talented students who have no prior experience in Computer Science an opportunity to embark on a highly successful career in computing and technology, often in coveted interdisciplinary roles or even in purely technical software development positions. The MCIT program stems from a belief that advanced computer science coursework for people with undergraduate degrees in other diverse fields leads to highly successful career paths. Our graduates and their careers today stand as strong proof to this philosophy. Within the realm of academia, pursuing further advanced study in computer science is also an option open to MCIT graduates. Due to the goals and nature of the MCIT program, it is strictly for applicants with limited or no past experience in computer science. Candidates with an undergraduate major in Computer Science or closely related fields, should consider applying to the Master of Science in Engineering (MSE) program instead.

For more information: http://www.cis.upenn.edu/prospective-students/graduate/mcit.php

Curriculum

A total of 10 course units are required for the MCIT degree.\(^1\)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Required Courses</strong>(^1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIT 591</td>
<td>Introduction to Software Development(^2)</td>
<td>1</td>
</tr>
<tr>
<td>CIT 592</td>
<td>Mathematical Foundations of Computer Science(^2)</td>
<td>1</td>
</tr>
<tr>
<td>CIT 593</td>
<td>Introduction to Computer Systems(^2)</td>
<td>1</td>
</tr>
<tr>
<td>CIT 594</td>
<td>Data Structures and Software Design</td>
<td>1</td>
</tr>
<tr>
<td>CIT 595</td>
<td>Computer Systems Programming</td>
<td>1</td>
</tr>
<tr>
<td>CIT 596</td>
<td>Algorithms and Computation</td>
<td>1</td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 4 electives(^4)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Total Course Units</strong></td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) It is expected that full-time MCIT students will take the six required courses during the first two semesters of enrollment and four electives during their second year.

\(^2\) Offered in the Fall semester only. They are the prerequisites for CIT 594 Data Structures and Software Design, CIT 596 Algorithms and Computation, and CIT 595 Computer Systems Programming, respectively, which are offered in the Spring semester only.

\(^3\) Courses can be waived or replaced only with the permission of the instructor. As of Fall 2016, students must pass a proficiency exam in order to waive a course. All MCIT courses must be completed (or waivers obtained) during the first semester that the course is offered during the student’s time in the program. Students may not waive or replace more than two required MCIT courses. Courses that are waived need to be replaced with a suitable alternative.

\(^4\) Electives

- MCIT students must also complete four graduate-level (500 or higher) electives.
- At least three must be a CIS course; one may be an approved non-CIS course.
- The following courses are recommended for all MCIT students:
  - CIS 550 Database and Information Systems
  - CIS 555 Internet and Web Systems
  - CIS 573 Software Engineering
  - CIS 557 Programming for the Web
- Additional suitable electives include:
  - CIS 502 Analysis of Algorithms
  - CIS 505 Software Systems
  - CIS 519 Introduction to Machine Learning
  - CIS 552 Advanced Programming
  - CIS 553 Networked Systems
  - CIS 554 Programming Paradigms
  - CIS 559 Programming and Problem Solving

Click here (http://www.cis.upenn.edu/about-academics/courses.php#500) for all CIS graduate course options.

- One course from the list of pre-approved non CIS graduate courses, found here (http://www.cis.upenn.edu/current-students/graduate/advising/electives-non-cis.php), may be used as an elective. Graduate courses offered in other departments may count as an elective with the prior approval of the MCIT program director; in general, such courses must have a strong technical component in order to be approved.

Continuing in the Master of Science in Computer & Information Science (CIS/MSE) Program

MCIT students may apply to continue in the Master of Science in Engineering in Computer & Information (CIS/MSE) program. Students pursuing this dual degree route need to satisfy a minimum GPA requirement, have earned a high grade in at least one CIS elective, and have completed the majority of the MCIT requirements at the time of applying. In addition to the ten courses required for the MCIT program, students continuing in the CIS/MSE program need to take six additional CIS graduate courses for a total of sixteen credits; satisfactory completion results in the awarding of the MCIT and CIS/ MSE degrees. Click here (http://www.cis.upenn.edu/current-students/graduate/mse) to access the CIS/MSE degree requirements. Click here (http://www.seas.upenn.edu/graduate/advising/documents/g-apply-for-dual-masters.pdf) to access the MCIT/CIS/MSE dual degree application.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2019 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.