

MASTER OF SCIENCE IN COMPUTER SCIENCE

The purpose of this program is to prepare students for the Ph.D. program and/or a research/development career in the industry in the field of computer science. Students have the option to pursue thesis research or a project under the guidance of a faculty adviser.

Curriculum

The Master of Science in Computer Science degree program requires a core curriculum of 12 credit hours and 20 credit hours of elective courses. The plan of study must consist of at least 32 credit hours, at least 20 of which must be 500-level CS courses.

| | |
|-----------------------------|----|
| Minimum Degree Credits | 32 |
| Minimum Core Course Credits | 12 |
| Minimum 500-Level CS Credit | 20 |

Degree Options

- **Coursework Only:** All degree requirement credit hours come from coursework.
- **Master's Project:** Elective credit hours can include up to five credit hours of master's project work (CS 597). A master's project comprises a high-quality paper submitted for publication as an article or as a technical report, or a high-quality piece of software. The software should be of distribution quality, but can be proprietary.
- **Master's Thesis:** Elective credit hours can include up to five credit hours of master's thesis work (CS 591). With adviser approval, up to three additional credit hours of CS 591 may be added. A student must successfully defend a thesis to apply CS 591 credit hours toward a degree. Students who complete both a project and a thesis can apply a maximum combined total of eight credit hours of CS 591 and CS 597 toward the degree.

Core Courses

Regardless of the degree option students are required to take four core courses from the three core areas: programming, systems, and theory. The requirement is at least one course from the programming area, at least one course from the systems area, and at least two courses from the theory area.

| Code | Title | Credit Hours |
|---|--|--------------|
| Programming Core Courses | | (3) |
| Select a minimum of one course from the following: | | 3 |
| CS 511 | Topics in Computer Graphics | 3 |
| CS 512 | Computer Vision | 3 |
| CS 525 | Advanced Database Organization | 3 |
| CS 540 | Syntactic Analysis of Programming Languages | 3 |
| CS 541 | Topics in Compiler Construction | 3 |
| CS 546 | Parallel and Distributed Processing | 3 |
| CS 551 | Operating System Design and Implementation | 3 |
| CS 553 | Cloud Computing | 3 |
| Systems Core Courses | | (3) |
| Select a minimum of one course from the following: | | 3 |
| CS 542 | Computer Networks I: Fundamentals | 3 |
| CS 544 | Computer Networks II: Network Services | 3 |
| CS 547 | Wireless Networking | 3 |
| CS 550 | Advanced Operating Systems | 3 |
| CS 555 | Analytic Models and Simulation of Computer Systems | 3 |
| CS 570 | Advanced Computer Architecture | 3 |
| CS 586 | Software Systems Architectures | 3 |
| CS 543 | Software-Defined Networking | 3 |
| Theory Core Courses | | (6) |
| Select a minimum of two courses from the following: | | 6 |
| CS 530 | Theory of Computation | 3 |
| CS 533 | Computational Geometry | 3 |
| CS 534 | Types and Programming Languages | 3 |

| | | |
|--|---|-------------|
| CS 535 | Design and Analysis of Algorithms | 3 |
| CS 536 | Science of Programming | 3 |
| CS 538 | Combinatorial Optimization | 3 |
| CS 539 | Game Theory: Algorithms and Applications | 3 |
| Elective Courses | | (20) |
| Select 20 credit hours from the following: | | 20 |
| CS 591 | Research and Thesis of Masters Degree (Master's Thesis) | 0-5 |
| CS 597 | Reading and Special Problems (Master's Project) | 0-5 |
| 400- or 500-level CS courses | | 15-20 |
| Total Credit Hours | | 32 |

Notes:

- All core courses must be satisfied by courses taken at Illinois Institute of Technology. Courses transferred for credit cannot be used to satisfy core course requirements. Core course credit hours do apply toward the 20-credit hour requirement for CS courses.
- Elective credit hours may include 400- and 500-level CS courses, certain courses transferred from other departments (pending adviser and departmental approval), and up to six credit hours of accelerated courses. CSP courses, Interprofessional Projects (IPROs), and deficiency courses (CS 201, CS 401, CS 402, and calculus) cannot be included. Consult the computer science department website (science.iit.edu/computer-science) for details.