

M.S. in Software Engineering

Master of Science in Software Engineering

The M.S. in Software Engineering (<https://cs.njit.edu/ms-software-engineering-ms-se/>) covers a wide range of topics essential for developing and managing software products, including software requirements, specification, analysis, design, implementation, verification, deployment, reuse, project management and evolution of software products. From an orthogonal perspective, the program addresses the engineering of software systems for performance, reliability, security, scalability, and maintainability. It also encompasses the economic and organizational facets of software development.

Prerequisites

Applicants should have a bachelor's degree from an accredited institution in a discipline related to computing (e.g., Computer Science, Computer Engineering, Information Sciences, or Information Technology). Applicants with a bachelor's degree in STEM or related professional experience can first take a graduate certificate (<https://cs.njit.edu/graduate-certificates/>) and then apply to the M.S. program. Further information can be found in the program's webpage (<https://cs.njit.edu/ms-software-engineering-ms-se/>).

Degree Requirements

The program requires the completion of 30 credits. These are satisfied by taking 10 courses.

| Code | Title | Credits |
|---|--|---------|
| Required Courses (18 Credits) | | |
| CS 673 | Software Design and Production Methodology | |
| CS 683 | Software Project Management | |
| CS 684 | Software Testing and Quality Assurance | |
| CS 685 | Software Architecture | |
| IS 676 | Requirement Engineering | |
| CS 700B | Master's Project | |
| Elective Courses (12 credits) ¹ | | |
| Select four of the following: | | 12 |
| CS 630 | Operating System Design | |
| CS 631 | Data Management System Design | |
| CS 632 | Advanced Database System Design | |
| CS 633 | Distributed Systems | |
| CS 634 | Data Mining | |
| CS 635 | Computer Programming Languages | |
| CS 656 | Internet and Higher-Layer Protocols | |
| CS 659 | Image Processing and Analysis | |
| CS 670 | Artificial Intelligence | |
| CS 675 | Machine Learning | |
| CS 678 | Topics in Smartphone Sec & Rel | |
| CS 690 | Software Studio | |
| CS 698 | Special Emerging Topics: | |
| IS 661 | User Experience Design | |
| IS 663 | System Analysis and Design | |
| IS 690 | Web Services and Middleware | |
| IT 696 | Network Management and Security | |
| EM 636 | Project Management | |
| EM 637 | Project Control | |
| MGMT 620 | Strategic Management of Technological Innovation | |
| YWCC 691 | Graduate Capstone Project ² | |

¹ Students can take other CS courses with advisor approval.

² YWCC 691 counts towards the 12 elective credits only when completed with an industrial partner, and with Program Director's approval.