

# 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
<b>Required Courses (18 Credits)</b>		
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	
<b>Elective Courses (12 credits) <sup>&amp;1</sup></b>		
Select four of the following:		
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 696	Network Management and Security	
CS 698	Special Emerging Topics:	
IS 661	User Experience Design	
IS 663	System Analysis and Design	
IS 690	Web Services and Middleware	
EM 636	Project Management	
EM 637	Project Control	
MGMT 620	Strategic Management of Technological Innovation	
YWCC 691	Graduate Capstone Project <sup>&amp;2</sup>	12

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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.