In a world where systems continue to grow more complex and interconnected, and globalization, technology, quality, complexity and productivity are the key business drivers, there is an increasing demand for technical leaders who can navigate and manage complex systems and enterprises.

At Stevens, our graduate program in systems engineering teaches the interdisciplinary skills and approaches needed to architect, design and manage complex technical systems and process throughout their life cycles. Our robust education builds upon existing technical and engineering foundations, and work experiences, with in-depth studies in business, management and systems engineering, among other disciplines.
MASTER OF ENGINEERING

The Master of Engineering in Systems Engineering provides the right blend of technical and management training to prepare systems engineers for positions of increasing responsibility. Upon graduation our students are exceptionally well prepared to address systems integration and life cycle issues, and can apply systems thinking at the system, system of system and enterprise levels. Graduates can work effectively at the interface between engineering and management in areas including healthcare, technology, business, finance, manufacturing and defense.

The master’s degree requires 10 courses (equivalent to 30 credits); six core required courses and four-elective courses.

Required Core Courses
The master’s degree requires the following core courses:

SYS 625 Fundamentals of Systems Engineering  
SYS 650 System Architecture and Design  
SYS 605 Systems Integration  
EM 612 Project Management of Complex Systems  
SYS 611 Modeling and Simulation  
EM 645 Design for System Reliability, Maintainability and Supportability  
SYS 660 Decision and Risk Analysis  
SYS 800 Special Problems in Systems Engineering

Elective Courses*
Applicable Elective Courses (up to four elective courses can be selected by the candidate)

SYS 640 System Supportability and Logistics  
SYS 655 Robust System Design  
ES 684 Systems Thinking  
EM 665 Integrated Supply Chain Management  
SYS 681 Dynamic Modeling of Systems and Enterprise  
SYS 801 Special Problems in Systems Engineering

* The electives listed here are for illustrative purposes only. Additional electives from other engineering disciplines are also available to students. Selection of electives must be approved and coordinated with a faculty advisor.

One of the four electives must be in a quantitative course as approved by a faculty advisor.

DOCTORAL DEGREE

The Doctor of Philosophy (Ph.D.) degree consists of 54 credits, post master’s with a minimum of 15 research credits. The curriculum for the doctoral program is designed to develop the ability of the student to perform high-impact research and high-level design that will contribute significantly in the advancement and growth of the field of systems engineering. For more details on the doctoral program and requirements, visit stevens.edu/sse/doctoral-studies.

“...The systems engineering curriculum at Stevens is a perfect balance of systems theory and practice, giving us the unique opportunity to work on real world problems. With faculty who are at the top of their game and more than willing to impart their knowledge and experience, coming to Stevens has been my best decision ever.”

Lana Brooke Miller  
Student, Master’s in Systems Engineering
GRADUATE CERTIFICATES (4 course, 12 credits)

All courses taken as part of a graduate certificate can be applied toward a master’s degree.

SYSTEMS ENGINEERING & ARCHITECTING

If you’re an engineer who wants to help solve today’s business problems and meet your future career goals, this four-course, online graduate certificate is perfect for you. The material presented in the Systems Engineering and Architecting (SEA) certificate provides an interdisciplinary approach based on an “entire view” of missions and operational environments and combines the capabilities of platforms, systems, operators and support to fashion solutions that meet customer needs. Our competencies in the SEA are nationally recognized for our achievements in engineering education and the research philosophy rooted in effective partnerships with industry, instructors whose broad backgrounds provide a balanced blend of academic rigor with practical experience teach the program.

Required courses for this Certificate include:
- SYS 605 Systems Integration
- SYS 625 Fundamentals of Systems Engineering
- SYS 650 System Architecture and Design
- EM 612 Project Management of Complex Systems

SYSTEMS & SUPPORTABILITY ENGINEERING

With an increasing percentage (often 65% or more) of the system life cycle cost (LCC) being allocated to operations and support, there is urgency about exploring “cause and effect” relationships between design decisions and their operational and support related impacts. This four-course certificate in Systems and Supportability Engineering presents innovative methods and practices to integrate system reliability, maintainability and supportability considerations into the systems engineering process. Current business trends, as well as, methods to optimize necessary logistics resources and processes will also be studied and discussed in this sequence of courses.

Required courses for this Certificate include:
- SYS 625 Fundamentals of Systems Engineering
- SYS 640 System Supportability and Logistics
- SYS 645 Design for System Reliability, Maintainability and Supportability
- SYS 650 System Architecture and Design and Supportability

ADVANCED SYSTEMS ARCHITECTURE

This certificate provides systems engineers and architects with a cross discipline approach to creating solutions based on the broad and complete view of systems and enterprises. Students in the program are exposed to systems architecting methods, approaches and tools that are useful for the effective management of systems engineering projects through project based instruction.

Required courses for this Certificate include:
- SYS 625 Fundamentals of Systems Engineering
- SYS 650 System Architecture and Design and Supportability
- SYS 750 Advanced System and Software Architecture Modeling and Assessment
- ES 679 Architecting the Extended Enterprise

Full course listings for graduate certificates can be found at stevens.edu/sse/graduate-certificates.
RELEVANT CURRICULUM

Stevens graduate courses are designed with a theory and implementation perspective. Utilizing an Open Academic Model, the School of Systems and Enterprises (SSE) leverages global partnerships with industry and government to provide a highly relevant and engaged curriculum tailored to the real world and the skill competency needs of practitioners.

Model Based Systems Engineering (MBSE) Focus - Over the past decade the systems engineering discipline has been moving from a PowerPoint mentality to a model-based discipline. At SSE, the curriculum has been model centric from its inception and students are exposed to a wide array of approaches to MBSE, such as: functional modeling in SYS 650, object oriented modeling in SYS 750 and agent-based modeling in SYS 611.

UNIQUELY QUALIFIED FACULTY

Stevens Institute of Technology brings together institute-wide faculty who are industry experts and practitioners, researchers and academics, with students who are committed to learning in a dynamic, diverse and engaged community. Stevens faculty possess a wealth of industry and government experience, and expertise across diverse domains, including Aerospace, Healthcare, Security, Telecommunications, Finance and Defense.

FLEXIBLE DELIVERY OPTIONS

Stevens Institute of Technology delivers its courses in convenient, flexible delivery formats including:

- Traditional semester courses held one evening a week for 15 weeks, on-campus at Stevens in Hoboken, NJ
- Online via our award-winning Stevens WebCampus
- On-site at industry and government sponsor locations worldwide

ADMISSION REQUIREMENTS

Applicants may apply online at stevens.edu/applications

- Completed application for admission
- $60 non-refundable application fee
- An undergraduate degree in engineering or in computer science or in a related discipline, with a “B” average or better from an accredited college or university
- Official transcripts from all institutions attended
- Two letters of recommendation
- GRE /GMAT scores (Not required for part-time students)