In a world where systems continue to grow more complex and interconnected, and profitability, capability, agility, resilience and cost-effectiveness 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 conceive, architect, design and manage complex technical systems and processes throughout their life cycles. Our robust education builds upon existing technical and engineering foundations, and work experiences, with management and systems and software 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, students are exceptionally well prepared to apply systems thinking at the system, system of systems and enterprise levels to successfully conceptualize systems and their support throughout their life-cycle. 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 ten courses (equivalent to 30 credits): six required core courses, three electives and a project or thesis (SYS 800 or SYS 900).

Required Core Courses (with large-scale cyber-physical systems concentration)

The master’s degree requires the following core courses:

- SYS 625 Fundamentals of Systems Engineering
- SYS 611 Systems Modeling & Simulation
- or SYS 660 Decision and Risk Analysis
- EM 612 Project Management of Complex Systems
- SYS 650 System Architecture and Design
- SYS 605 Systems Integration
- SYS 640 System Supportability and Logistics
- or SYS 645 Design for System Reliability, Maintainability and Supportability
- SYS 800 Special Problems in Systems Engineering (project)
- or SYS 900 Thesis in Systems Engineering (thesis)

Elective Courses

The master’s degree includes three elective courses*:

- ES 684 Systems Thinking
- SES 602 Secure Systems Foundations
- SSW 540 Fundamentals of Software Engineering
- SYS 750 Advanced System and Software Architecture Modeling & Assessment

*Additional electives are also available to students. Students can take electives from SSE academic course offerings in (SYS) systems engineering which includes space systems engineering, (SSW) software engineering, (EM) engineering management which includes systems analytics, (ES) socio-technical systems, (SES) systems engineering security or advisor approved courses. SYS 611, SYS 660 and SYS645, if not already taken, are strongly recommended as electives. All electives must be approved and coordinated with 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.
GRADUATE CERTIFICATES (four courses, 12 credits)

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

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

SYSTEMS ENGINEERING

Core Requirements:
- SYS 625 Fundamentals of Systems Engineering
- SYS 650 System Architecture and Design

Electives: (Select two courses from the following list.)
- SYS 605 Systems Integration
- EM 612 Project Management of Complex Systems
- SYS 750 Advanced System and Software Architecture Modeling and Assessment
- SYS 645 Design for System Reliability, Maintainability and Supportability  
  or SYS 660 Decision and Risk Analysis
  or SYS 611 Systems Modeling and Simulation

SPACE SYSTEMS ENGINEERING

Core Requirements:
- SYS 625 Fundamentals of Systems Engineering
- SYS 650 System Architecture and Design
- SYS 632 Designing Space Missions and Systems
  or SYS 635 Human Spaceflight
- SYS 633 Mission and Systems Design Verification and Validation
  or SYS 605 Systems Integration

SYSTEMS SECURITY ENGINEERING

Core Requirements: (Choose four of the five courses listed.)
- SES 602 Secure Systems Foundations
- SES 622 Fundamentals of Systems Engineering Security
- SES 623 Systems Security Architecture and Design
- SYS 660 Decision and Risk Analysis
- SSW 689 Engineering of Trusted Software Systems

SYSTEMS SUPPORTABILITY ENGINEERING

Core Requirements:
- SYS 640 System Supportability and Logistics
- SYS 645 Design for System Reliability, Maintainability and Supportability

Electives: (Select two courses from the following list.)
- SYS 625 Fundamentals of Systems Engineering
- SYS 650 System Architecture and Design
- ES 684 Systems Thinking
- EM 680 Designing and Managing the Development Enterprise
RELEVANT CURRICULUM

Stevens graduate courses are designed to solve real problems supported by a robust theoretical foundation. 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.

Over the past decade the systems engineering discipline has been moving from a PowerPoint mentality to a model-based systems engineering focus. At SSE, the curriculum has been model centric from its inception and students use model-based systems and software tools throughout the core curriculum.

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, 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 score (Not required for part-time students)