# The Wesley J. Howe School of Technology Management - III

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**GRADUATE PROGRAMS**

Business success in the 21st century will be increasingly dependent on the strategic development and use of technology. This is a complex challenge since the solutions to many business problems rely on the convergence of a number of technologies and their proper alignment with customer requirements and various other business elements. Therefore, the ability to manage and market technology creatively is essential for enhancing business competitiveness. The Wesley J. Howe School of Technology Management has been designed to meet this need. It features a spectrum of customer-oriented curricula to accommodate gaining expertise and training in important technology management concentrations and research endeavors.

Currently, the School of Technology Management offers many graduate degree programs: the Master of Science in Management, the Master of Science in Information Systems, the Master of Business Administration in Technology Management, the Master of Technology Management for Experienced Professionals, the Master of Business Administration in Technology Management for Experienced Professionals and the Doctor of Philosophy Degree with concentrations in Information Management, Technology Management and Telecommunications Management. In addition, the School participates in several interdisciplinary graduate programs: a Master of Science in Telecommunications Management (with the Electrical and Computer Engineering department), a Master of Science in Information Systems with technical interdisciplinary tracks: Computer Science, Quantitative Software Engineering, Information Security, E-commerce (with the Computer Science department) Integrated Information Architecture (with the Electrical and Computer Engineering department), and Systems Engineering (with the Systems Engineering and Engineering Management department).

**Stevens Undergraduates in Simultaneous Degree or Deferred Graduate Credit Programs**

Undergraduate students with junior or above standing who have at least a 3.0 GPA may obtain permission to take graduate courses by completing a study plan with the Program Director and submitting it to the Registrar's Office. Registration in graduate courses requires permission of the course instructor. Undergraduate students are not permitted in the Master of Science - Information Systems program or courses. Students must obtain a signed certification of standing prior to seeking permissions. This form is available from the Registrar's web site.

**MASTER OF SCIENCE**

**Master of Science - Management**

The Master of Science - Management program focuses on the practice of management and is grounded in a variety of analytic and administrative approaches drawn from the fields of management, economics, applied psychology and quantitative methods. The philosophy of the program is that knowledge of these areas is only one of the components of an educated manager. In addition to knowledge, it is the steady development of conceptual reasoning that signals the growth of integrative critical thinking and judgment – the hallmarks of professional management practitioners.  To accomplish this educational goal, all students take a set of common core courses and select additional courses based upon their chosen concentration.  The Master of Science in Management core includes coursework in technology and innovation management, which reflects the focus of both the Howe School and Stevens Institute of Technology.

This 12-course, 36-credit program leads to the degree of Master of Science in Management and is designed for working professionals with at least two years of work experience. However, applicants who do not meet this work experience requirement, but have outstanding academic records, will be considered for admission. Admission to the program requires a bachelor's degree with at least a "B" average, and two letters of recommendation. Prerequisites may include a semester of microeconomics (Mgt 503 or equivalent) and a semester of introductory calculus (Ma 501 or equivalent). Admissions decisions are made on a rolling basis, so students are encouraged to apply at any time during the year.

Students must discuss their program plans with their advisors, whose names are listed on the Letter of Acceptance.  Advisors will be able to recommend appropriate choices and may be able to waive required courses depending on previous educational accomplishment.  Upon evidence of satisfactory prior completion of a required course, students may, upon academic advisor approval, substitute an elective.

All international students who are applying who have English as a second language will need a TOEFL score of 550 (213 for computer-based) and must take a Stevens English test upon arrival, which will include both the TOEIC (Test for English for International Communication) and a written essay exam. As a result of these exams, those students who do not become exempt from developmental English will be placed in an appropriate English course offered by Stevens. Following completion of the course(s), the student must take a post-test and pass in order to be exempt from future language courses. Satisfaction of the language skills requirement must occur within the first year of study at Stevens. Either the GRE or GMAT examination is also required for international students.

(Please note that several course numbers have changed.  A conversion chart of old Mgt course numbers and new Mgt course numbers is included at the end of this program section.)

Six concentrations are available: General Management, Global Innovation Management, Human Resource Management, Information Management, Project Management, Technology Management and Technology Commercialization. Students considering doctoral study are encouraged to complete a master's thesis as part of their degree.

**Common Core Courses for Master of Science in Management**

Mgt 600 Managerial Accounting
Mgt 607 Managerial Economics
Mgt 680 Organizational Behavior and Theory (or
Mgt 612 for Project Management concentration)
Mgt 690 Organization Theory and Design
Mgt 609 Introduction to Project Management
Mgt 620 Statistical Models

Additional Core Courses are drawn from the
following list and are specified for each
concentration.

**General Management Concentration**

The General Management concentration provides students with a
basic grounding in the finance and marketing functional areas of
management. It also requires students to apply their broad-based
understanding of organizations to specific problems of project
management and strategic management. In addition to the common
core courses, all students who choose the General Management
concentration are required to take additional core and concentration
courses as follows:

**Additional Core Courses**

Mgt 671 Technology and Innovation Management
Mgt 679 Management Information Systems

**Concentration Courses**

Mgt 623 Financial Management
Mgt 641 Marketing Management
Mgt 725 Strategic Management

**Electives**
Students will choose one elective with the
approval of their Academic Advisor.

**Global Innovation Management Concentration**

In the current era of globalization, firms that depend on innovation
as their source of growth often need to create and manage their
innovations on a global basis. This emerging trend, with its unique
promise and complexity, is the focus of the Global Innovation
Management concentration. Students learn the business issues,
motivations and processes of doing international and global business,
with specific attention given to innovation management in this
environment. They also gain awareness of the social impact on host
countries.

In addition to the common core courses, students in the Global Innovation Management concentration will also take additional core and concentration courses as follows:

**Additional Core Courses**

Mgt 671 Technology and Innovation Management
Mgt 679 Management Information Systems

**Concentration Courses**

Mgt 630 Global Business and Markets
Mgt 650 International Business Management
Mgt 673 Global Innovation Management

**Electives**
Students will take one elective with the approval of their Academic Advisor. Mgt 641 Marketing Management and Mgt 632 Power and Politics in International Business are recommended.

**Human Resource Management Concentration**
The HR program operates from a theory of the firm that considers organizations as learning entities rather than collections of assets that can be managed independently of their environments.  The philosophy of the coursework is that approaching the study of management and people from the perspective of learning incorporates an attitude that recognizes the desirability of change, the importance of continuous growth and the need for innovative capability in product, service, process and organizational development.  It is through people that organizations initiate, carry out, develop and adapt.

In addition to the common core courses, students in the Human Resource Management concentration will also take additional core and concentration courses as follows:

**Additional Core Courses**

Mgt 671 Technology and Innovation Management
Mgt 679 Management Information Systems

**Concentration Courses**

Mgt 646 HR Processes: Techniques and Applications
Mgt 647 Legal & Social Environment of Human Resources
Mgt 654 Organizational Change and Development

Students will take one elective with approval of advisor.

**Information Management Concentration**

The Information Management concentration focuses on management skills and the knowledge required to make efficient use of information in the organization. Today, more than ever, there is a pressing need for information systems that effectively support the strategic objectives of the organization. Consequently, the individuals creating and managing such systems have to be much more familiar with the business aspect of their organization than was necessary in the past. This concentration blends significant aspects of both business management and information systems knowledge, thereby preparing students to specify, develop and manage information systems as a strategic organizational resource.

This program is geared for the business professional seeking an understanding of information management. IT professionals should review the Master in Information Systems degree.

In addition to the common core requirements, including Mgt 679 Management Information Systems, all students who choose the Information Management concentration will take six of the following concentration courses, with the approval of their academic advisor:

**Concentration Courses (choose six)**

MIS 620 Analysis and Development of Information Systems
MIS 630 Data and Knowledge Management
MIS 640 Managing Information Networks
MIS 760 IT Strategy
MIS 750 Management of IT Organizations
MIS 710 Enterprise Systems Management
MIS 730 Integrating IS Technologies

**Project Management Concentration**

The Stevens Project Management Concentration provides education and training in project management at the graduate level. While pursuing the M.S. Management degree, students can also earn the Graduate Certificate in Project Management (GC/PM) as they prepare to achieve the Project Management Professional (PMP) certification independently administered by the **Project Management Institute (PMI)** .

The Project Management concentration presents the theory and practice of project management in modern organizations. Generally accepted and innovative practices in project management are presented in a manner that links project planning and execution with the achievement of strategic business goals. The Project Management concentration teaches new concepts in strategic project management and leadership that were developed by Howe faculty and have

achieved international acclaim.

In addition to the core requirements, all students who choose the Project Management concentration take additional core and concentration courses as follows:

**Additional Core**

Mgt 671 Technology and Innovation Management

**Concentration Courses**

Mgt 618 Engineering Economics and Management Policy or Mgt 621 Management Models or Mgt 623 Financial Management
Mgt 610 Strategic Perspectives on Project Management
Mgt 612 The Human Side of Project Leadership
Mgt 614 Advanced Project Management

Students will choose two electives with the approval of Academic Advisor;
Mgt 641 Marketing Management is a recommended elective. Mgt 671 Technology and Innovation Management
Mgt 677 Emerging Technologies

**Concentration Courses**

Mgt 618 Engineering Economics and Management Policy
Mgt 656 Total Quality Management

**Electives**
Students will choose two electives with the approval of their academic advisor; Mgt 641 Marketing Management, Mgt 673 Global Innovation Management, Mgt 725 Strategic Management, Mgt 672 Technology Licensing and Finance and Mgt 675 New Product and Service Innovation are recommended electives.

**Technology Commercialization Concentration**
For new technologies to make the transition from R&D or engineering departments to becoming valuable assets there are critical issues that define the efficient processes, legal protections and potential for financial realization for the firm.  This set of courses is designed for professionals who are in or hope to operate in firms that invent, develop and market technology.

### Additional Core
Mgt 671 Technology and Innovation Management
Mgt 623 Financial Management

### Concentration Courses
Mgt 677 Emerging Technologies
Mgt 672 Technology Licensing and Finance
Mgt 675 New Product and Service Innovation

### Electives
Students will take one elective, with approval of their academic advisor.  Recommended electives are:Mgt 641 Marketing Management, Mgt 663 Entrepreneurship, Mgt 661 Online Marketing or Mgt 725 Strategic Management.

## Master of Business Administration - Technology Management

Our emphasis on technology management distinguishes a Howe School education from that provided by most other management schools. Our research and educational programs focus on the determinants of real value for the firm - product and process innovation and strategic project management. We also emphasize the development of communication and leadership skills through innovative pedagogical techniques and the maintenance of small class sizes, which enable an intimate relationship between students and faculty members.

The MBA in Technology Management (TM) adds general management skills to the knowledge of technology management provided by our M.S. degree programs. Graduates from the MBA in TM program will be able to use their business, technology management and people skills to align technology trends with customer needs, and to manage their organizations in an increasingly complex and competitive world.

At least 2 years of work experience is preferred for applicants to the MBA in TM program. However, students who do not meet this work experience requirement, but have outstanding academic records, may be considered for admission. Applicants to the MBA in TM program are required to have a four-year bachelor's degree. All applicants must submit transcripts showing academic achievement in prior studies, two letters of recommendation, a resume and a score in either a GMAT or GRE examination. International students must also submit a TOEFL score. Students currently enrolled in one of the Howe School's M.S. degree programs may apply to join the MBA in TM program prior to obtaining their M.S. degree by submitting a written application together with their GMAT or GRE score. Courses taken in the M.S. program may count towards the MBA degree. Similarly, students who are currently enrolled in the MBA in TM program may apply to enroll in one of the Howe School's M.S. degree programs prior to obtaining their MBA in TM degree by submitting a written application.

To obtain the degree of MBA in Technology Management, students must take 20 3-credit courses (60 credits) of course work.

Ten majors are available in the MBA in TM program: Engineering Management, Financial Engineering, Global Technology Management, Information Management, Information Technology in the Financial Services Industry, Information Technology Outsourcing, Information Technology in the Pharmaceutical Industry, Pharmaceutical Technology Management, Project Management and Telecommunications Management.

**MBA in TM with Engineering Management Major**

The Engineering Management (EM) major prepares students for the role of "Engineering Manager" in a technology-based company. Students in this major take twelve MBA core courses, three engineering management courses, two systems courses and three electives. Prerequisites for this major include a semester of microeconomics (Mgt 503 or equivalent) and a semester of introductory calculus.

### MBA Core Courses for the EM Major

Mgt 609 Introduction to Project Management
Mgt 725 Strategic Management
Mgt 600 Managerial Accounting
Mgt 607 Managerial Economics
Mgt 623 Financial Management
Mgt 641 Marketing Management
Mgt 680 Organizational Behavior and Theory
Mgt 690 Organization Theory and Design
Mgt 620 Statistical Models
Mgt 671 Technology Management
Mgt 657 Operations Management
Mgt 679 Management Information Systems

### Engineering Management Major Requirements

EM 600 Engineering Economics and Cost Analysis
EM 605 Elements of Operational Research
SYS 611 Modeling and Simulation
 or SYS 660 Decision and Risk Analysis
SYS 625 Systems Operational Effectiveness and Life-cycle Analysis
One Engineering Management Elective

*Plus three advisor-approved electives or a master's thesis plus one advisor-approved elective.*

**MBA in TM with Financial Engineering Major**

Less theoretical than competing financial engineering programs, the Financial Engineering (FE) major provides students with both managerial and analytical skills specific to the world of finance. Students in this major take eleven MBA core courses, two preparatory courses in mathematics and probability; six courses specialized to financial engineering, and one elective course. Prerequisites for this major include a semester of microeconomics (Mgt 503 or equivalent)

and a semester of introductory calculus.

### MBA Core Courses for the FE Major
Mgt 609 Introduction to Project Management
Mgt 725 Strategic Management
Mgt 600 Managerial Accounting
Mgt 607 Managerial Economics
Mgt 623 Financial Management
Mgt 641 Marketing Management
Mgt 680 Organizational Behavior and Theory
Mgt 690 Organization Theory and Design
Mgt 671 Technology Management
Mgt 657 Operations Management
Mgt 679 Management Information Systems

### Financial Engineering Major Requirements
Ma 505 Introduction to Mathematical Methods (may be waived by
  advisor)
Ma 540 Introduction to Probability Theory (may be waived by advisor)
TM 613 Knowledge Discovery and Data Mining
Mgt 625 Investments and Capital Markets
Ma/FE 610 Probability and Stochastic Calculus
Ma/FE 620 Pricing and Hedging
Ma/FE 621 Computational Methods in Finance or CS 535 Financial
Computing
Ma/FE 630 Portfolio Theory and Risk Management
Plus one advisor-approved elective.

## MBA in TM with Global Technology Management Major

The Global Technology Management (GTM) major provides knowledge of the economic drivers and cultural aspects that must be understood by managers seeking success in rapidly expanding global markets. Students in this major take twelve MBA core courses plus four global technology management courses, a course in macroeconomic analysis and three elective courses. Prerequisites for this major include a semester of microeconomics (Mgt 503 or equivalent) and a semester of introductory calculus.

### MBA Core Courses for the GTM Major
Mgt 609 Introduction to Project Management
Mgt 725 Strategic Management
Mgt 600 Managerial Accounting
Mgt 607 Managerial Economics
Mgt 623 Financial Management
Mgt 641 Marketing Management
Mgt 680 Organizational Behavior and Theory
Mgt 690 Organization Theory and Design
Mgt 671 Technology Management
Mgt 657 Operations Management
Mgt 679 Management Information Systems
Mgt 620 Statistical Models

### Global Technology Management Major Requirements

Mgt 608 Macroeconomic Analysis
Mgt 630 Global Business and Markets
Mgt 632 Power, Politics and Policy in International Business
Mgt 650 International Business Management
Mgt 673 Global Innovation Management

*Plus three advisor-approved electives or a master's thesis plus one advisor-approved elective.*

## MBA in TM with Information Management (IM) Major

Students taking the MBA in TM Information Management major take a number of general management courses in addition to the courses required for the M.S. in Information Systems degree.

Prerequisites for this major include a semester of introductory undergraduate calculus and MIS 502 Selected Topics in Economics, Statistics, and Accounting, for students not having previous coursework in these areas. For people with little or no information systems professional experience, MIS 501 (Information Management) is a prerequisite.

### MBA Core Courses for the Information Management Major
Mgt 609 Introduction to Project Management
Mgt 600 Managerial Accounting
Mgt 607 Managerial Economics
Mgt 623 Financial Management
Mgt 680 Organizational Behavior and Theory
Mgt 690 Organization Theory and Design
Mgt 657 Operations Management
MIS 661 Marketing Online
MIS 662 Legal Issues for the IT Professional
MIS 760 Information Technology Strategy
MIS 750 Management of Information Technology Organizations
Mgt 620 Statistical Models

### Information Management Major Requirements
MIS 663 Entrepreneurship in IT
MIS 710 Enterprise Systems Management
MIS 730 Integrating IS Technologies
MIS 620 Analysis and Development of Information Systems
MIS 630 Data and Knowledge Management
MIS 640 Network Management

*Plus two advisor-approved electives or a thesis.*

## MBA in TM with IT in Financial Services (ITF) Major

This major responds to the need for information technology programs that are specific to the financial services community and the software vendors and consulting firms that serve this industry.

Prerequisites include a semester of introductory undergraduate calculus and a semester of microeconomics, such as Mgt 503 or equivalent.

### MBA Core Courses for ITF Major
Mgt 609 Introduction to Project Management
Mgt 600 Managerial Accounting
Mgt 607 Managerial Economics
Mgt 623 Financial Management
Mgt 680 Organizational Behavior and Theory
Mgt 690 Organization Theory and Design
MIS 684 Financial Services Marketing and Sales
MIS 662 Legal Issues for IT Professionals
MIS 663 Entrepreneurship in IT
MIS 760 Information Technology Strategy
MIS 750 Management of IT Organizations
Mgt 620 Statistical Models<![endif]>

### Information Technology for Financial Services Major Requirements
MIS 681 Financial Services Trends and Issues
MIS 682 Financial Services Capital Markets
MIS 683 Financial Services Back Office
MIS 684 Financial Services Marketing and Sales
MIS 620 Analysis & Development of IS*
MIS 630 Data and Knowledge Management*
MIS 640 Network Management*
MIS 710 Enterprise Systems Management
MIS 730 Integrating IS Technologies

*Select two from these three courses.*

## MBA in TM with IT Outsourcing Major
This major addresses the increasing need for information technologists who are knowledgeable in the best practices of IT outsourcing, and possess the ability to manage outsourcing relationships on an on-going basis. Prerequisites include a semester of introductory undergraduate calculus and a semester of microeconomics, such as Mgt 503 or equivalent.

### MBA Core Courses for IT Outsourcing Major
Mgt 609 Introduction to Project Management
Mgt 600 Managerial Accounting
Mgt 607 Managerial Economics
Mgt 623 Financial Management
Mgt 680 Organizational Behavior and Theory
Mgt 690 Organization Theory and Design
MIS 661 Marketing Online
MIS 662 Legal Issues for IT Professionals
MIS 663 Entrepreneurship in IT
MIS 760 Information Technology Strategy
MIS 750 Management of IT Organizations

Mgt 620 Statistical Models<![endif]>

**Information Technology Outsourcing Major Requirements**
MIS 650 IT Outsourcing: Governance and Measurement
Mgt 654  Organization Change and Development
MIS 652 Relationship Management in IT Outsourcing
MIS 651 IT Outsourcing: Legal Issues
MIS 620 Analysis and Development of IS*
MIS 630 Data and Knowledge Management*
MIS 640 Network Management*
MIS 710 Enterprise Systems Management
MIS 730 Integrating IS Technologies

*Select two from these three courses.*

**MBA in TM with IT in the Pharmaceutical Industry (ITP) Major**
   The integration of business and technology in both R&D and business applications is a primary concern of the pharmaceutical industry. This major addresses the need for individuals with an understanding of both information technology and the pharmaceutical industry.  Prerequisites include a semester of introductory undergraduate calculus and a semester of microeconomics, such as Mgt 503 or equivalent.

**MBA Core Courses for ITP Major**
Mgt 609 Introduction to Project Management
Mgt 600 Managerial Accounting
Mgt 607 Managerial Economics
Mgt 623 Financial Management
Mgt 680 Organizational Behavior and Theory
Mgt 690 Organization Theory and Design
Mgt 760 Operations Management
MIS 662 Legal Issues for IT Professionals
MIS 663 Entrepreneurship in IT
MIS 760 Strategic Management of IT
MIS 750 Management of IT Organizations
Mgt 620 Statistical Models

**Information Technology in the Pharmaceutical Industry Major Requirements**
MIS 671 Pharma Industry Trends & Issues
MIS 672 Pharma New Drug Development
MIS 674 Pharma Marketing & Sales
MIS 673 Pharma Supply Chain
MIS 620 Analysis & Development of IS*
MIS 630 Data Management*
MIS 640 Managing Information Networks*
MIS 710 Enterprise Systems Management
MIS 730 Integrated IS Technologies

*Select two from these three courses*

## MBA in TM with Pharmaceutical Technology Management Major

The Pharmaceutical Technology Management (PTM) major provides a solid foundation in business fundamentals, an in-depth understanding of the operations and strategic management of the pharmaceutical industry and the opportunity to develop additional breadth in areas such as new business ventures, global innovation management and TQM, to name a few. The Stevens MBA in Pharmaceutical Technology Management is unique in its focus on both business excellence and the exploitation of technology and innovation for business success. Prerequisites include a semester of introductory undergraduate calculus and a semester of microeconomics, such as Mgt 503 or equivalent.

### MBA Core Courses for the PTM Major
Mgt 609 Introduction to Project Management
Mgt 725 Strategic Management
Mgt 600 Managerial Accounting
Mgt 607 Managerial Economics
Mgt 623 Financial Management
Mgt 641 Marketing Management
Mgt 680 Organizational Behavior and Theory
Mgt 690 Organization Theory and Design
Mgt 671 Technology Management
Mgt 654 Organizational Change and Development
Mgt 679 Management Information Systems
Mgt 620 Statistical Models

### Pharmaceutical Technology Management Major Requirements
Mgt 677 Emerging Technologies
Mgt 681 Managing Pharmaceutical R&D
Mgt 682 Marketing, Sales and Supply Chain Management in the Pharmaceutical Industry
Mgt 683 Introduction to Pharmaceutical Manufacturing
Mgt 684 Regulation and Compliance in the Pharmaceutical Industry

*Plus three advisor-approved electives or a master's thesis plus one advisor-approved elective.*

## MBA in TM with Project Management (PM) Major

Excellence in project execution is the hallmark of successful companies. This major teaches new concepts in strategic project management and leadership that were developed by the Howe faculty and have achieved international acclaim. Students taking the MBA in TM with a PM major take a number of project management courses in addition to the courses required for an M.S. in Management degree. Prerequisites for this major include a semester of microeconomics (Mgt 503 or equivalent) and a semester of introductory calculus.

### MBA Core Courses for PM Major
Mgt 609 Introduction to Project Management
Mgt 600 Managerial Accounting
Mgt 607 Managerial Economics
Mgt 620 Statistical Models
Mgt 621 Management Models
Mgt 623 Financial Management
Mgt 641 Marketing Management
Mgt 690 Organization Theory and Design
Mgt 671 Technology and Innovation Management
Mgt 656 Total Quality Management
Mgt 725 Strategic Management
Mgt 657 Operations Management*
Mgt 710 Risk Management*

*Select one out of these two courses.*

### Project Management Major Requirements
Mgt 610 Strategic Perspectives on Project Management
Mgt 611 Project Planning and Monitoring
Mgt 612 The Human Side of Project Leadership
Mgt 614 Advanced Project Management

*Plus four advisor-approved electives or two electives and a thesis.*

## MBA in TM with Telecommunications Management Major

Wireless, IP and traditional communications technologies are the foundation for electronic commerce and global operations in every industry. This unique major provides both technical and management skills for tomorrow's telecommunications leaders.

Students taking the MBA in TM Telecommunications Management major take a number of general management courses in addition to the courses required for an M.S. in Telecommunications Management degree. Prerequisites for this major include a semester of undergraduate introductory calculus (TM 500 or equivalent) and a semester of microeconomics (Mgt 503 or equivalent). Students who lack an introductory telecommunications background may be required to take TM 550 Introduction to Telecommunications Concepts.

### MBA Core Courses for Telecommunications Major
Mgt 609 Introduction to Project Management
Mgt 725 Strategic Management
Mgt 600 Managerial Accounting
Mgt 607 Managerial Economics
Mgt 623 Financial Management
Mgt 641 Marketing Management
Mgt 680 Organizational Behavior and Theory

Mgt 690 Organization Theory and Design
Mgt 671 Technology and Innovation Management
Mgt 710 Risk Management
Mgt 657 Operations Management
Mgt 620 Statistical Models

### Telecommunications Management Major Requirements
Mgt 618 Engineering Economics
TM 601 Principles of Applied Telecommunications Technology
TM 605 Probability for Telecommunications Managers
TM 610 Business Information Networks
TM 612 Regulation and Policy in the Telecommunications Industry
TM 770 Economics of Networks

*Plus two advisor-approved electives or a thesis.*

## Master of Science-Master of Business Administration in Technology Management

The M.S.-MBA is a coordinated degree program that requires students to take 24 courses (72 credits) of course work. Students graduate with both a Howe School M.S. degree and an MBA in Technology Management degree.

The combination of M.S. and MBA in TM courses provides in-depth preparation for graduates wishing to assume either general management or technology-related managerial positions in organizations. The program is also designed to allow students to specialize in topic areas that are of special interest to their individual careers.

The application requirements are the same as those listed above for the MBA in TM program. Current M.S. or MBA in TM students must apply in writing before they can be admitted to the M.S.-MBA degree.

The M.S.-MBA has the same majors as the MBA program. To satisfy the requirements for the M.S.-MBA degree, students must satisfy all the requirements listed above to obtain an MBA in TM degree in one of the eight major areas. In addition, students must take an additional four courses approved by an academic advisor.

## Master of Science in Information Systems

The Master of Science in Information Systems (MSIS) program evolved from a review by Stevens of industry and student needs. The MSIS Program is designed to provide participants with the requisite management, business, strategic and technical skills needed to help their companies apply information systems technology more efficiently and effectively.

Rapid advancements in technology, dynamic markets and the changing business

environment have created increased demand for professionals who can manage and deliver information systems. This demand has been accelerated by new competition, shorter product lifecycles and more complex and specialized markets. Information systems professionals are required to lead and evolve information resources while partnering with corporate management.

The Stevens MSIS program teaches IT professionals how to help their organizations achieve success through alignment and deployment of business and IT strategies. The program is an interdisciplinary combination of twelve courses, typically taken over a two-year period. It is a practical program that is more like an apprenticeship where students work on real business problems.

Classes combine lectures, cases, individual and team projects and participant presentations. Many projects will be applicable directly to the participant's sponsoring organization's business needs. Instructors are nationally/internationally recognized experts in information technology, technology management and business strategy. Instructors generally have substantial corporate experience and academic qualifications. Emphasis is placed on providing practical experience that can be applied immediately.

Stevens offers a multi-track M.S. program to help you achieve your Information Technology career objectives. Students choose one of the following 14 career tracks to complete the MSIS degree:

**Management Tracks**

| | |
|---|---|
| Entrepreneurial IT | (weeknights or Saturdays for students sponsored by their company) |
| Global Innovation Management | (weeknights or Saturdays for students sponsored by their company) |
| Human Resource Management | (weeknights or Saturdays for students sponsored by their company) |
| Information Management | (weeknights or Saturdays for students sponsored by their company) |
| IT in Financial Services | (Saturdays) |
| IT in Pharmaceutical | (Saturdays) |
| Project Management | (weeknights or Saturdays for students sponsored by their company) |

**Technical Tracks**

| | |
|---|---|
| Quantitative Software Engineering | (weeknights or Saturdays for students sponsored by their |

| | company) |
|---|---|
| Systems Engineering | (weeknights or Saturdays for students sponsored by their company) |
| Information Security | (weeknights only) |
| Integrated Information Architecture | (weeknights or Saturdays for students sponsored by their company) |
| Computer Science | (weeknights only) |
| E-Commerce | (weeknights only) |
| Telecommunications Management | (weeknights only) |

In addition to strong, practical, real-world IT and management skills, graduates of the program leave with improved communication, interpersonal and team skills. The MSIS is a professional degree that integrates information and organizational cultures with emphasis on IT professionals who can contribute to the business.

To ensure quality and continuous improvement, participants are asked to appraise their courses twice each semester. These results are reviewed by the faculty and are made available to both participants and their sponsoring organizations.

### Degree Requirements:

- Twelve graduate courses (36 credits) with a minimum GPA of 3.0 for the degree of Master of Science.
- Bachelor's degree in Information Systems, Management, Computer Science and/or equivalent experience. Students without programming experience must take a programming course.
- For people with little or no information systems professional experience, Mgt 501 Information Management is a prerequisite for all MSIS courses.

Students considering doctoral study are required to complete a master's thesis as part of their degree.

### Required Core Courses:

Mgt 609 Introduction to Project Management
Mgt 623 Financial Management
Mgt 680 Organizational Behavior and Theory
MIS 760 (formerly Mgt 780) IT Strategy
MIS 750 (formerly Mgt 781) Managing the IT Resource
MIS 710 (formerly Mgt 783) Enterprise Systems Management
MIS 730 (formerly Mgt 784) Integrating IS Technologies

**Management Concentrations**

**Information Management Track - Concentration Courses**
   MIS 620 (formerly Mgt 772) Analysis and Development of Information Systems
   MIS 630 (formerly Mgt 773) Data and Knowledge Management
   MIS 640 (formerly Mgt 776) Managing Information Networks

   Students will also choose two electives or write a thesis with the approval of their academic advisor.

   The typical admission profile includes career advancement in general management, non technical information technology leadership, technology leadership or consulting, three or more years of information technology/business experience and a Bachelor's in business/management, sciences or liberal arts.

**Entrepreneurial IT Management Track - Concentration Courses**
   MIS 640 (formerly Mgt 776) Managing Information Networks
   MIS 661/Mgt 661 Marketing Online
   MIS 662/Mgt 662 Legal Issues for the IT Professional
   MIS 663/Mgt 663 Entrepreneurship in IT
   MIS 620 (formerly Mgt 772) Analysis and Development of Information Systems

   Typical admission profile includes career advancement in information technology e-related business, general management in e-business, entrepreneurship or consulting, three or more years of information technology/business experience.

**IT in the Pharmaceutical Industry - Concentration Courses**
   MIS 671 (formerly Mgt 721) Pharmaceutical Services Industry Trends and Issues
   MIS 672 New Drug Development
   MIS 674 Pharmaceutical Marketing & Sales
   MIS 673 (formerly Mgt 724) Pharmaceutical Supply Chain
   Select one from:
      MIS 620 (formerly Mgt 772) Analysis and Development of Information        Systems
      MIS 630 (formerly Mgt 773) Data and Knowledge Management
      MIS 640 (formerly Mgt 776) Managing Information Networks<![endif]>

   Typical admission profile includes non-technical information technology leadership in a pharmaceutical corporate environment, three or more years of information technology/business experience and a bachelor's in business, information systems, political science or international relations.

**IT in Financial Services Industry - Concentration Courses**
   MIS 681 (formerly Mgt 761) Financial Services Industry Trends and Issues
   MIS 682 (formerly Mgt 762) Capital Markets
   MIS 683 (formerly Mgt 763) Back Office
   MIS 684 (formerly Mgt 764) Financial Services Marketing and Sales
   Select one from:
      MIS 620 (formerly Mgt 772) Analysis and Development of Information      Systems
      MIS 630 (formerly Mgt 773) Data and Knowledge Management
      MIS 640 (formerly Mgt 776) Managing Information Networks

   Typical admission profile includes non-technical information technology leadership in a financial services corporate environment, three or more years of information technology/business experience and a Bachelor's in business, information systems political science or international relations.

**Global Innovation Management Track - Concentration Courses**
   MIS 630 (formerly Mgt 773) Data and Knowledge Management
   Mgt 630 Global Business and Markets
   Mgt 650 International Business Management
   Mgt 673 Global Innovation Management
   MIS 620 (formerly Mgt 772) Analysis and Development of Information     Systems

   Typical admission profile includes non-technical information technology leadership in a global environment, three or more years of information technology/business experience and a Bachelor's in business, information systems, political science or international relations.

**Human Resource Management Track - Concentration Courses**
   MIS 630 (formerly Mgt 773) Data and Knowledge Management
   Mgt 646 Human Resource Processes: Techniques and Applications
   Mgt 647 Legal and Social Environment of Human Resources
   Mgt 654 Organizational Change and Development
   MIS 620 (formerly Mgt 772) Analysis and Development of Information Systems

   Typical admission profile includes IT human resource management/staff career advancement, information technology leadership, three or more years of information technology/business experience and a Bachelor's in business, information systems or human resources.

**Project Management Track - Concentration Courses**
   Mgt 610 Strategic Perspectives on Project Management
   Mgt 612 The Human Side of Project Leadership

Mgt 614 Advanced Project Management
MIS 620 (formerly Mgt 772) Analysis and Development of Information Systems
MIS 630 (formerly Mgt 773) Data and Knowledge Management

Typical admission profile includes career advancement as information technology project leader or functional area project leader, three or more years of information technology/business experience and a Bachelor's in information systems, computer science, business/management, sciences or liberal arts.

**Technical Concentrations**

**Computer Science Track - Recommended Concentration Courses (Interdisciplinary)**
CS 561 Database Management Systems I
CS 551 Software Engineering and Practice I
CS 552 Software Engineering and Practice II
CS 666 Information Networks I
Plus, one computer science elective.

Students will develop a plan of study with the approval of their academic advisor.

Typical admission profile includes information systems technical career advancement and three or more years of information technology experience. A strong mathematics and technical background is recommended.

**Information Security - Concentration Courses (Interdisciplinary)**
Choose four courses**:**
MIS 645 CyberSecurity Principles for Managers
MIS 646 Enterprise Architecture for Information Security
MIS 647 Information Security and the Law
CS 573 Fundamentals of Computer Security
CS 694 E-Business Security & Information Assurance
Select one from:
MIS 620 (formerly Mgt 772) Analysis and Development of Information        Systems
MIS 630 (formerly Mgt 773) Data and Knowledge Management
MIS 640 (formerly Mgt 776) Managing Information Networks

Typical admission profile includes technical management and leadership or consulting, three or more years of information technology or networking experience and a Bachelor's in information systems or computer science. A strong mathematics and technical background is recommended.

**E-Commerce Technical Track - Concentration Courses (Interdisciplinary)**
Select two from:
   MIS 620 (formerly Mgt 772) Analysis and Development of Information Systems
   MIS 640 (formerly Mgt 776) Managing Information Networks
   MIS 661/Mgt 661 Marketing Online
   MIS 662/Mgt 662 Legal Issues for IT Professionals
   MIS 663/Mgt 663 Entrepreneurial IT
And, select three from the following:
   CS 561 Database Management Systems I
   CS 537 Interactive Computer Graphics I
   CS 533 Cost Estimation and Metrics
   CpE 636 Integrated Services - Multimedia
   TM 619 E-Commerce Technologies

   Typical admission profile includes e-commerce technical career advancement and three or more years of information technology experience. A strong mathematics and technical background is recommended.

**Integrated Information Architecture Track - Concentration Courses (Interdisciplinary)**
   NIS 560 Introduction to Networked Information Systems
   CS 561 Database Management Systems I
   NIS 611 Digital Communications Engineering I
   MIS 630 (formerly Mgt 773) Data and Knowledge Management
   And, select one from the following:
      CpE 654 Design and Analysis of Network Systems
      CpE 592 Multimedia Network Security
      CpE 636 Integrated Services - Multimedia
      CpE 678 Information Networks I

   Typical admission profile includes technical management and leadership in systems architecture, three or more years of information technology experience and a bachelor's in information systems or computer science. A strong mathematics and technical background is recommended.

**Quantitative Software Engineering Track - Concentration Courses (Interdisciplinary)**
   CS 540 Fundamentals of Quantitative Software Engineering
   CS 564 Software Requirements Acquisition and Analysis
   CS 565 Software Architecture and Component-Based Design
   CS 533 Cost Estimation and Metrics
   MIS 630 (formerly Mgt 773) Data and Knowledge Management

   Typical admission profile includes application systems analysis or testing career advancement, three or more years of information technology experience and a bachelor's in information systems or

computer science. A strong mathematics and technical background is recommended.

### Systems Engineering Track - Concentration Courses (Interdisciplinary)
SYS 625 Systems Operational Effectiveness and Life-Cycle Analysis
SYS 650 System Architecture and Design
SYS 611 Modeling and Simulation
SYS 660 Decision Risk Analysis
MIS 620 (formerly Mgt 772) Analysis and Development of Information     Systems

Typical admission profile includes technical management and leadership or consulting, three or more years of information technology experience and a Bachelor's in information systems or computer science. A strong mathematics and technical background is recommended.

### Telecommunications Management Track - Concentration Courses
TM 601 Principles of Applied Telecommunications Technology
TM 605 Probability for Telecommunications Managers
TM 610 Business Information Networks
TM 612 Regulation and Policy
MIS 630 (formerly Mgt 773) Data and Knowledge Management

Typical admission profile includes general management in telecommunications industry or telecommunications management, three or more years of information technology/network experience and a Bachelor's in information systems or computer science. A strong mathematics and technical background is recommended.

## Master of Science - Telecommunications Management
The Telecommunications Management graduate program (M.S. and Ph.D.) is an interdepartmental program involving the Wesley J. Howe School of Technology Management and the Electrical and Computer Engineering Department of the Charles V. Schaefer, Jr. School of Engineering. The Wesley J. Howe School of Technology Management administers this program. The M.S. in Telecommunications Management is also offered in Beijing, China in partnership with Beijing Institute of Technology.

The Telecommunications Management curriculum addresses the demanding requirements of the telecommunications industry, businesses and government for technical expertise combined with business skills. The program provides students with advanced technical knowledge of applied telecommunications integrated with business management. Admission to the program requires a bachelor's degree with at least a "B" average, including a semester of calculus. For students who lack this prerequisite, Stevens offers a non-credit calculus course for telecommunications management (e.g., TM 500). International students need a TOEFL score of 550

(213 for computer-based).

    A student in this program is likely to be an individual who is, or aspires to be, a manager or supervisor in a corporation's or government agency's communications department. The student will typically be responsible for various aspects of planning, implementation and management of the systems that satisfy the corporate requirements for voice, video and data communications. The goal of this student is to become a management professional responsible for communications planning and resources, including people, networks and systems, and for decisions involving planning and budgeting for acquisition, installation and maintenance, of products and services. Each sector of industry (government, regulatory, common carrier, financial, equipment vendor, consultant, R&D) will have corresponding profiles of professionals who need such technical expertise and management skills. This degree program builds an advanced foundation for more specialized study while enabling professionals from all industry sectors to understand and interact with customers and communications professionals who make the decisions on how businesses will implement communications.

    Specialized courses are available in the areas of management of wireless networks, network management and evaluation, global innovation management, communications security and project management. Students who wish to continue beyond their master's degree may pursue the Ph.D. program in Technology Management with a specialization in Telecommunications Management.

    In addition to a number of off-campus (corporate-sponsored) programs, Telecommunications Management is offered on campus, weekdays and Saturdays and via web campus. Courses are offered year-round, in three terms.

### Core Courses - Telecommunications Management
TM 601 Principles of Applied Telecommunications Technology
TM 605 Probability for Telecommunications Managers
TM 610 Business Information Networks
TM 612 Regulation and Policy in the Telecommunications Industry

Mgt 609 Introduction to Project Management
Mgt 600 Managerial Accounting
Mgt 618 Engineering Economics and Management Policy

### Concentration and Elective Courses
In designing a study plan with an advisor, students may choose any four courses from the tracks, or on-campus students may choose a concentration in a focused area of study and take the elective courses listed within the concentration.

### Business Management Track (choose four)
Mgt 641 Marketing Management
Mgt 680 Organizational Behavior and Theory
Mgt 690 Organization Theory and Design

TM 670 Decision Analysis for Corporate Network Systems
Mgt 671 Technology and Innovation Management
Mgt 710 Risk Management: Methods and Applications
Mgt 656 Total Quality Management
MIS 661/Mgt 661 Marketing Online
MIS 662/Mgt 662 Legal Issues for the IT Professional
MIS 663/Mgt 663 Entrepreneurship in IT
MIS 640 (formerly Mgt 776) Managing Information Networks
TM 616 Global Wireless Industry
TM 765 Selected Topics in Telecommunications Management

## Technical Management Track Courses (choose four)
TM 611 Emerging Technologies
TM 613 Knowledge Discovery and Data Mining for Telecommunications     Managers
TM 614 Principles of Traffic Engineering and Performance Analysis
TM 615 Wireless Communications and Mobile Computing
TM 617 Next Generation Wireless Networks
TM 619 E-Commerce Technologies
TM 621 Telecommunications Switching and Signaling
TM 624 Network Management
TM 694 E-Business Security and Information Assurance
TM 670 Decision Analysis for Corporate Network Systems
Mgt 710 Risk Management: Methods and Applications
TM 765 Selected Topics in Telecommunications Management
MIS 645 CyberSecurity Principles for Managers
MIS 646 Enterprise Architectures for Information Security

## Global Innovation Management (choose four)
Mgt 630 Global Business and Markets
Mgt 650 International Business Management
Mgt 671 Technology and Innovation Management
Mgt 673 Global Innovation Management

## Management of Wireless Networks (choose four)
TM 615 Wireless Communication and Mobile Computing
TM 616 Global Wireless Industry
TM 617 Next Generation Networks
TM 618 Performance of Emerging Mobile Wireless Networks
EE 584 Wireless Systems Security

## Online Technology, Business and Security (choose four)
TM 619 E-Commerce Technologies
TM 694 E-Business Security and Information Assurance
MIS 661/Mgt 661 Marketing Online
MIS 662/Mgt 662 Legal Issues for the IT Professional
MIS 663/Mgt 663 Entrepreneurship in IT
MIS 645 CyberSecurity Principles for Managers

MIS 646 Enterprise Architectures for Information Security

## Project Management Concentration (choose four)
Mgt 609 Introduction to Project Management (core, required for all)
Mgt 610 Strategic Perspectives on Project Management
Mgt 612 The Human Side of Project Leadership
Mgt 614 Advanced Project Management
Mgt 611 Project Planning and Monitoring
Mgt 613 Project Management Office

## Security Management and Forensics (choose four, all have pre-reqs.)
CS 573 Fundamentals of CyberSecurity
CS/TM 694 E-business Security and Information Assurance
CS/TM/MIS 648 CyberSecurity Forensics
MGT 710 Risk Management Methods and Applications

## Satisfying Prerequisites
Students who satisfy Telecommunications Management admissions requirements but lack calculus and an introductory telecommunications background, may be required to complete the following non-credit courses:
TM 500 Calculus for Telecommunications Managers
TM 550 Introduction to Telecommunications Concepts
These courses are offered at least once every academic year.

## Graduate Certificate in Telecommunications Management
TM 601 Principles of Applied Telecommunications Technology
TM 605 Probability for Telecommunications Managers
TM 610 Business Information Networks
TM 612 Regulation and Policy in the Telecommunications Industry
(All credits earned may be applied towards the master's degree and the MBA.)

**Master of Technology Management for Experienced Professionals (EMTM)**
The EMTM program is specifically designed for experienced professionals wishing to move to a broader role in technology and business management. Applicants should have a bachelor's degree in a technical discipline, and have at least five years work experience in a technology-related field. The EMTM program focuses on the effective management and use of technology in technology-intensive businesses. It integrates business and technology topics focused on educating participants to manage technology creatively in order to enhance business competitiveness in a global business environment. Orientation is given in general business skills such as finance and marketing, and emphasis is placed on aligning technology development with business strategy through application of TQM, and the use of emerging technology, innovation and multifunctional teams.

The EMTM program consists of eleven courses that are completed in six

trimesters. The courses are supplemented by a number of one-day workshops (practicums) utilizing business simulation tools that reinforce classroom concepts while providing students with experience running a high tech company.  Applicants are required to have a bachelor's degree in a relevant technical discipline.  Consideration will be given to prospective students with non-technical undergraduate degrees provided they have appropriate technology-based work experience.

   All courses are taught by Stevens faculty and Executives-in-Residence and are scheduled at convenient satellite locations in northern (Morristown) and central (Tinton Falls) New Jersey. Classes are held one afternoon/evening per week and run from 3:30 p.m. to 9:30 p.m. There is a short break for dinner, which is provided on site. In the final semester, the capstone course requires several non-consecutive weekend (Friday evening/Saturday) sessions on the Stevens campus. Students complete their EMTM degree in 21 months.

### Curriculum for the Master of Technology Management degree
EMT 624 Financial Analysis for Technological Organizations
EMT 628 Accounting Lab
EMT 642 Marketing Management in Technical Organizations
EMT 629 Marketing Lab
EMT 677 Emerging Technologies
EMT 758 Oral and Written Communications
EMT 714 Technology Strategy
EMT 715 Strategic Business Management
EMT 740 Managing Multifunctional Teams
EMT 741 Innovation Management Process
EMT 751 Project Management and Leadership
EMT 752 Corporate Venturing
EMT 755 Process Management in High-Tech Organizations
EMT 798 Integration and Application of Technology Management

### MBA in Technology Management Program for Experienced Professionals (EMBA in TM)
   The EMBA in TM program is designed for experienced professionals wishing to move to a broader role in technology and business management. Applicants should have a bachelor's degree in a technical discipline, and have at least five years work experience in a technology-related field. All applicants must submit transcripts showing academic achievement in prior studies, two letters of recommendation from their companies, a letter stating their career objectives, a resume and their GMAT score. International students should also submit a TOEFL score. The EMBA-TM program encompasses the EMTM curriculum but includes additional courses that enhance skills in business management. Students who wish to obtain their MBA in Technology Management degree through this program take all of the courses in the EMTM curriculum, and then proceed to a 5-course extension program leading to the MBA-TM degree. The additional courses include the following:

EMT 800B Managerial Decision Making
EMT 800C Technology Commercialization
EMT 607 Managerial Economics
EMT 623 Financial Management

EMT 625 Investments and Capital
Markets

**New Course Numbers**
  Many course numbers changed for the 2004-2005 academic year. Please find below a conversion chart of old and new course numbers, in ascending order of old numbers. Please note that course numbers that have changed are in bold type.

| OLD NUMBER | NEW NUMBER | COURSE NAME |
|---|---|---|
| MGT 503 | MGT 503 | Microeconomics |
| MGT 529 | **MGT 654** | Organizational Change and Development |
| MGT 530 | **MGT 647** | Legal & Social Environment of HR (was HR and the Law) |
| MGT 550 | **MGT 609** | Intro. to Project Management |
| MGT 551 | **MGT 725** | Strategic Management |
| MGT 552 | **MGT 718** | Multivariate Analysis |
| MGT 557 | **MGT 658** | New Business Ventures |
| MGT 566 | **MGT 646** | HR Processes: Techniques and Applications (was Task Analysis) |
| MGT 599 | **MGT 719** | Research Methods |
| MGT 600 | MGT 600 | Managerial Accounting |
| MGT 607 | MGT 607 | Managerial Economics |
| MGT 608 | MGT 608 | Macroeconomics |
| MGT 610 | MGT 610 | Strategic Perspectives on Project Management |
| MGT 611 | MGT 611 | Project Planning Techniques |
| MGT 612 | MGT 612 | Human Side of Project Leadership |
| MGT 618 | MGT 618 | Engineering Economics |
| MGT 623 | MGT 623 | Financial Mgmt. |
| MGT 625 | MGT 625 | Investments and Capital Markets |
| MGT 626 | MGT 626 | Cost Analysis and Control |
| MGT 630 | MGT 630 | Global Business and Markets |
| MGT 632 | MGT 632 | Power, Politics and Policy in International Business |
| MGT 641 | MGT 641 | Marketing Management |
| MGT 643 | **MGT 700** | Econometrics |
| MGT 650 | MGT 650 | International Management |
| MGT 680 | MGT 680 | Organization Behavior and Theory |
| MGT 685 | MGT 685 | Employee Compensation |
| MGT 690 | MGT 690 | Organization Theory and Design |
| MGT 701 | **MGT 691** | Management Policy Dynamics |
| MGT 702 | **MGT 671** | Technology and Innov. |
|  | **MGT 672** | Technology Licensing and Finance |
|  | **MGT 675** | New Product and Service Innovation |
| MGT 707 | **MGT 677** | Emerging Technologies |
| MGT 710 | MGT 710 | Risk Management |
| MGT 720 | **MGT 673** | Global Innovation Management |
| MGT 730 | MGT 730 | Design and Analysis of Experiments |
| MGT 733 | MGT 733 | Applied Regression Analysis |
| MGT 737 | **MGT 613** | Project Management Office |
| MGT 738 | **MGT 614** | Advanced Project Management |
| MGT 744 | MGT 744 | Analytic Methods of Forecasting |
| MGT 750 | **MGT 656** | TQM |
| MGT 760 | **MGT 657** | Operations Management |
| MGT 766 | **MGT 661** | Marketing Online (cross-listed as MIS 661) |
| MGT 767 | **MGT 662** | Legal Issues for the IT Professional (cross-listed as MIS 662) |
| MGT 768 | **MGT 663** | Entrepreneurship (cross-listed as MIS 663) |
| MGT 771 | **MGT 679** | Management Information Systems |
| MGT 795 | **MGT 621** | Management Models |
| MGT 796 | **MGT 620** | Statistical Models |