MASTER OF SCIENCE IN TECHNOLOGY MANAGEMENT

PROGRAM DIRECTORS

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MISSION AND OBJECTIVES

The Master of Science in Technology Management (MSTM) is a joint program developed and delivered by the Schools of Computer Science & Mathematics, and Management, Marist College.

The program instructs professionals with technical education, experience, and expertise in the application of technology to organizational strategy that impacts firm effectiveness, efficiency, and competitiveness. Students in the program develop the ability to recognize technology as a key success factor for the enterprise. They are given an integrative and comprehensive approach to manage the implementation and application of technology to the organization's value chain. Graduates are expected to take up middle management and executive positions in organizations with responsibility to effectively use technology for organizational competitiveness. The program advantages enhance student's career development that can lead to Senior Technology Executive roles. Alternatively these individuals may work in the role of consultants to traditional business managers in the application of technology to increase a firm's competitive advantage.

Candidates for the Master of Science in Technology Management are technology, science, and engineering professionals with five to ten years of experience in technical or managerial positions, who want to expand their managerial and technical skills and organizational knowledge in technology management and implementation. These are individuals who bring technology to organizational functions and are readying themselves for leadership positions in technology to create value for their firms and their clients. They need to be forward-thinking professionals who can spot opportunities for their organization to take advantage of emerging technologies. They will enroll in this program to enhance the organization's operations, decision-making processes, and engagements with their network partners through the ability to efficiently and effectively apply technology to innovate the business.

The MSTM program is a 12-course, 36-credit-hour, part-time program to be completed in six semesters. It includes a 18-credit core for all candidates, with three

course offerings from each School, and then a choice between two distinct tracks – "Information Technology & Systems Management," and "Strategic Technology Management." Both of these specializations have five additional courses distinguished by a two-semester capstone experience and an intensive 10-day international residency in the "Global Aspects of Technology Management." Students will also have an orientation residency and a capstone presentation residency on Marist's main campus.

PHILOSOPHY

Technology is defined as the body of scientific methods and materials applied to industrial and commercial objectives. In the spirit of this definition, this program focuses on the nexus of firm strategy and technology to create competitive advantage. The Marist College Master of Science in Technology Management enhances managerial acumen in strategically directing the use and products of technology across an enterprise. Creating value for the organization requires managers to be change agents, proactive in a dynamic world, and to understand the dynamic relationship between the organization's competitive and internal environments. Managers need to use existing resources to create value, and to understand the impact of their decisions and actions for all stakeholders across the full spectrum of the value chain. Focusing on the systems and interpersonal processes of managing, this program provides an integrative, applied perspective for facilitating operational and strategic decision making with technology resources (in the form of IT and other modern technologies).

The goal is for managers to create value for the organization by leveraging human, knowledge, and technology assets. As such, this program offers unique capstone experiences to achieve this by building capabilities in managing technology workers and processes as well as planning for the future. A two-semester capstone experience focuses on building analytical and strategic thinking through case study and then applying what is learned in real world team and individual projects that focus on building the business case for implementing change in their own firms.

DIFFERENTIATION

We have reviewed many programs and have found that the positioning of the MSTM is comparatively unique as it:

- Creates an integrated enterprise view of IT and other technologies by focusing on its beneficial role across the value chain.
- Offers a common core and two tracks, one in Strategic Technology Management and one in Information Technology and Systems Management.
- Instills Project Management as an integral skill in planning and managing operations.
- Focuses on the distinctive skills and role of the Senior Technology Executive in driving innovation across the organization, its suppliers, customers and partners.

- Develops the ability to align business opportunities with emerging technologies.
- Offers an interdisciplinary program by drawing upon the strengths of the School of Management and the School of Computer Science and Mathematics, through its department of Computer Science, Information Systems and Information Technology.
- Is offered fully online and follows a cohort format
- Requires students to attend an international residency, dealing with technological changes across international markets and amidst global developments, virtual organizations, and management across cultures. Corporate site visits are combined with presentations by professors from non-U.S. universities and presentations by relevant practitioners.

ON-SITE AND ONLINE FORMAT

This program is offered online in a cohort format. Courses in Fall and Spring run 15 weeks, courses in Summer run 10 weeks. There are three residencies (one international).

INTRODUCTORY RESIDENCY

The cohort meets at Marist College in the week prior to the first semester for a two-day introductory residency. The objective of the residency is to provide an introduction the program and to Marist College, as well as the opportunity to meet cohort members. It includes meeting program faculty and administrative staff as well as training in the online elearning system, any other communication tools used, and Marist College's online library facilities.

FINAL RESIDENCY

This residency is connected to the Capstone II courses in each track and concludes the program. Students present their final projects to a forum of industry representatives and faculty. Junior cohort members (students in the next cohort) are encouraged to join the audience for the final project presentations.

INTERNATIONAL RESIDENCY

The course Global Aspects of Technology Management is a joint international experience for both track cohorts. Students travel to Marist for a one day introduction to the program (introductory reading material is distributed up to four weeks prior to the course). Following the introduction is a 10-day trip to a foreign country that explores global aspects of technology management through visits of companies, academic and other institutions and direct interaction with the respective cultures. Details of the academic work are laid out in the respective syllabus. Destinations will vary based on

the faculty leading the program and current technology hot-spots in the world. This residency is planned to take place in the time frame end of May to beginning of June. The second course to be taken in that summer begins after the cohort returns.

ADMISSIONS REQUIREMENTS

In addition to the application materials addressed in the Admissions to Graduate Programs section of the General Information section of this catalog, the following are required for admission consideration to the MSTM Graduate Program:

- A minimum of a bachelor's degree preferably in computer science, engineering, science, or business with an MIS concentration. Other undergraduate majors are considered if the concurrent experience base warrants admission to the program.
- An undergraduate GPA of 3.0 or higher
- A completed Graduate Admission Application (available online)
- A $50 application fee
- Two recommendation letters
- Official transcripts from all prior undergraduate and graduate institutions attended.
- A current resume
- At least three years of post-baccalaureate leadership and managerial experience in a technology role or at least five years post-baccalaureate professional experience in a technical position if little to no leadership or managerial experience
- A GMAT (Report code is K9K-FZ-91)score or a GRE (Report code is 2400) score (on both tests) of 500 or better – tests may be waived if the applicant has five years of post-baccalaureate managerial or leadership experience or eight years of post-baccalaureate professional experience or a graduate degree.

Admissions requirements for international students are outlined in the Application Requirements for International Students in the General Information section of this catalog.

STUDENT STATUS

Only admitted students are enrolled in the program. Only enrolled students may take classes in the program. Students enroll in the program as part-time students. They attend classes online with certain on-campus and off-campus short residencies. The program calendar fits within the school academic calendar. Marist College's minimum admission, continuation, and graduation policies and procedures apply.

CONTINUATION

This is a cohort-based program. Students are expected to take all courses in the program in the prescribed sequence. They are required to maintain a B average. They are required to obtain a passing grade in each course, which is a C or better. Only two grades of C are permitted throughout the program. If a student misses a course or is unable to continue for any reason they must wait to join the next cohort in a subsequent year to continue their progress toward graduation.

EXIT REQUIREMENTS

Students are required to complete all 36 credits of course work with grades of A, B, or C and with at least a B average

ADVISEMENT

The program directors serve as the primary advisors to all students in the program. Students should feel free to discuss any questions or concerns that they may have regarding their planned studies with the program directors.

CURRICULUM

Core Courses

MSTM 601	Leadership and Organizational Behavior
MSTM 625	Marketing Foundations for Technology Managers
MSTM 640	Analyzing the Corporate Financial Environment of Technology-Driven Companies
MSTM 603	Systems and Information Concepts in Organizations
MSTM 613	Information Systems Policy
MSTM 623	Decision Making Tools for the Technology Manager

Strategic Technology Management Track

MSTM 715	Economics for the Technology Manager
MSTM 765	Managing Technology Operations and Projects
MSTM 754	Managing Organizational Change
MSTM 801	Technology Management for Competitive Advantage: Capstone Experience I
MSTM 802	Technology Management for Competitive Advantage: Capstone Experience II

Information Technology and Systems Management track

MSTM 710	Managing Information Resources in a Network Economy
MSTM 720	Enterprise Information Modeling
MSTM 730	Data and Information Quality for the Information Executive
MSTM 811	Information Technology Management for Competitive Advantage: Capstone Experience I
MSTM 812	Information Technology Management for Competitive Advantage: Capstone Experience II

International Component

MSTM 800	Global Aspects of Technology Management

Total number of required credits **36**

MSTM Program Required Common Courses (18 Credits)

Graduate Courses in Technology Management

CORE COURSES

MSTM 601
Leadership and Organizational Behavior
3 Credits
This course examines management and leadership in technology organizations in both theory and practice. Traditional and modern theories of leadership and organizational behavior, as well as practical application of these theories in the workplace, are explored. The course also examines aspects of power and influence of leaders in organizations. The course assists the student in examining his/her leadership style and assists in the development of a plan to improve skills in desired areas relevant to managing technology.

MSTM 625
Marketing Foundations for Technology Managers
3 Credits
Managers of technology-driven firms are facing competition from every corner of the globe. Constantly evolving lines of competitive products, new technologies, and new regulations are commonplace. In this competitive environment where product life cycles are short, managers of technology-driven firms must develop and implement successful marketing strategies. This course, specifically designed for managers of technology-based companies, will provide the knowledge and skills to develop and implement highly effective strategic marketing strategies. Course lectures, case studies, and discussion sessions integrate the concepts and principles. Primary focus is on issues facing corporations in technology-intensive industries.

MSTM 640
Analyzing the Corporate Financial Environment of Technology-Driven Companies
3 Credits
This course will provide the students with the knowledge to analyze the corporate financial environment of technology firms as well as the financial impact of implementing and applying technology throughout the value chain. They will be introduced to the relevant tools to analyze financial statements, as well as to the means of making financial decisions regarding raising capital and dividend policy. The instructors will use technology companies as the lecture examples and will also point out the specific needs and requirements of technology firms. Given that technology firms are often in a stage of rapid growth, the specific corporate financial environment of this stage will be analyzed. Liquidity management will be particularly stressed. In addition, the students will apply what they are learning to their own company. Students will, throughout the course, present their findings to the class. This will allow them to see the wide variety of reporting formats and differing financial circumstances of these firms.

We will examine these topics from multiple viewpoints, and emphasize the importance of thinking, analyzing, and applying the concepts rather than memorizing descriptive material. This course will therefore be conducted in a lecture/discussion format. Class participation is desired and expected. The material to be learned for the exams will come from the lecture material, the course textbook, and class discussions.

MSTM 603
Systems and Information Concepts in Organizations
3 Credits
This is a course concerned with the organization and its environment as a super system and hence all other systems are sub-systems within the super system. The reciprocal effects of organization and technology are stressed to develop fundamental understanding of the impacts and demands of new technologies on organizations. Systems theory is used to develop the systems approach to problem solving in large global organizations. Several case studies covering such topics as value chain management, enterprise resource plan-

ning, and competitive advantage are analyzed to further develop the skills and knowledge of the systems approach. MIS literacy is developed to build an adequate foundation for subsequent course work in other areas. Most of all, this is a course in problem solving in using Information Technology in Organizations.

MSTM 613
Information Systems Policy
3 Credits
This is a course that investigates the Fundamental Issues that the CIO manages in order to perform his/her functions in a way that leads to success of the firm. Emphasis is placed on investigating the knowledge, skills, and abilities required to become a CIO. The course covers many of the current issues that executives face in making IT and IS decisions. The diverse topics include mission of IS/IT, new roles for IS/IT, CIO responsibilities, strategic uses of information technology, seven planning techniques for introducing new technology, distributed technology strategies for global corporations, outsourcing, managing information resources and staff, and new approaches to developing systems, and transitioning from legacy systems.

MSTM 623
Decision Making Tools for the Technology Manager
3 Credits
Decision Support Systems (DSS) were first developed in the 1970s to provide decision makers with computer-based tools for semi- and unstructured decision-making tasks. The emphasis is on helping managers make better decisions. Decision makers are increasingly overwhelmed by the number of decisions, the amount of data available and the necessary speed of decision making, to help make these decisions. Their success depends on their ability to extract business value from the raw data their organization collects. This course focuses on the application of management science and data-driven decision-making tools to assist human decision-making processes. Throughout the course students are encouraged to think critically about how we make decisions, and to learn how to avoid common errors of judgment that occur because of faulty intuition and biased mental models.

STRATEGIC TECHNOLOGY MANAGEMENT TRACK

MSTM 715
Economics for the Technology Manager
3 Credits
This course is designed to provide the student with a basic understanding of economic theories, concepts, and issues as they relate to management in the technology environment.

The initial part of the course will focus on familiarizing the student with standard economic concepts as a foundation for applications to high-tech industries and the new economy. Microeconomic material will cover the structure of an economy, with particular emphasis on how markets operate. Attention will also be directed to understanding the market behavior of consumers and firms (producers). Macroeconomic concepts, theories, and issues will be covered in the context of the aggregate economy in the United States: how consumers and producers, together with the government and the international sector, interact as a whole. Macroeconomics measures (such as GDP, interest rates, exchange rates, unemployment, inflation, and the business cycle) will be explored in relation to management decisions in a technology environment.

After covering the traditional economic concepts, the course will also focus on economic concepts and issues that are specifically relevant to Technology Operations.

MSTM 754
Managing Organizational Change
3 Credits
This course covers the theory and practices of improving organizational effectiveness through planned, systematic intervention. Change management—the visualization, planning, and implementation of transi-

tions throughout the organization or business unit—is fast becoming a key source of competitive advantage. The course will provide the theory and practice of change management and strategic planning including organizational development and organizational transformation.

MSTM 765
Managing Technology Operations and Projects
3 Credits
Managing Technology Operations and Projects is intended to provide the student with an insight into operations processes, systems functions, and projects of technology-driven organizations. The emphasis is placed on efficient use of available, modern technologies in operations management and their efficient implementation and application. This insight will be based on foundational concepts, analytic methods, and their applications, such as process and system analysis. Techniques learned in the course Decision-making Tools for the Technology Manager are integrated and applied to decision making in operations management.

Additionally, this course provides the theoretical base as well as practical business application to enable technology management professionals to manage projects successfully. An integrative approach emphasizes technical as well as communications and leadership skills necessary to accomplish value and customer satisfaction in project management (PM). Planning, scheduling, and controlling techniques as well as systems methodologies are introduced and applied using commercial PM software solutions to case studies and business situations evolving around technology implementation projects. The analysis of these business scenarios also addresses management of resource constraints, planning, negotiation and integration of outside partners into projects, as well project risk assessment. Innovative and creative problem-solving skills are developed and practiced throughout the course.

MSTM 801
Technology Management for Competitive Advantage: Capstone Experience I
3 Credits
This course is designed to enable students to analyze business situations from the point of view of the practicing technology manager. Technology managers have responsibility for making strategic decisions that affect the company across the enterprise. The key tasks involved in technology management include the detection of and adaptation to environmental change, the procurement and allocation of critical resources, the integration of activities across the organization, and the alignment of technology strategy and activity with the firm's vision. Students will combine knowledge from other courses with information presented here to develop sophisticated interpretations and analyses of actual business problems and opportunities involving technology and strategy.

MSTM 802
Technology Management for Competitive Advantage: Capstone Experience II
3 Credits
This course provides students with an opportunity to prepare and present an integrated technology-focused field project using the concepts, topics, and methods learned during the program and integrated in the preceding capstone experience. Emphasis is on the full development, analysis, and proposed resolution of an ongoing technological issue or concern of prime importance to an organization.

This course has two primary activities. One, a team assignment involves developing a technology project for an organization. The team conducts a preliminary feasibility study, the project management plan (including a description and analysis of resources), risk assessment, cost analysis benefit, a systems development or adoption plan, ending with a professional report and presentation at the end of class.

The second is an individual endeavor to create a strategic plan for implementing a project or change in the student's organization.

INFORMATION TECHNOLOGY AND SYSTEMS MANAGEMENT TRACK

MSTM 710
Managing Information Resources in a Network Economy
3 Credits
During the 1990s, information technology was the tail that wagged the dog. Post Y2K and the dot com bubble, it is now essential that managing information technology means getting a return on investment. This course will provide the student with the opportunity to blend technical skills with business acumen. IT does matter; IT exists to support core business values. It is essential to bridge the gap between IT and business, getting the two sides of the organization to talk to each other; and leveraging IT to automate and improve business processes. Innovative usage of information technology and telecommunications has allowed some industry players to enter, create, or restructure entire industries. Successfully competing in the information economy requires an understanding of how IT relates to the overall business strategy of the organization. This course is a combination of lectures and a high degree of case analysis and discussion. Students will be expected to analyze the critical issues in a series of management cases and be prepared to discuss their analyses and recommendations.

MSTM 720
Enterprise Information Modeling
3 Credits
This course prepares students to effectively model, manage, and participate in the development of information technology applications in support of business processes. The course focuses on modern systems analysis and modeling techniques for transforming user needs into IT-driven applications. Students will learn elements of the object-oriented approach seen from both a managerial and a technical perspective. The Unified Modeling Language and the Unified Process will be introduced as part of the course.

MSTM 730
Data and Information Quality for the Information Executive
3 Credits
This course is an executive overview of data and information quality (DQ and IQ) problems in organizational information systems and exploration of approaches to correct such problems. Approaches to correcting the problems within organizations include Total Data Quality Management, treating Information as a Product (IP), building IP-MAPS, judicious application of Control Processes and statistics, Measurement, Information Quality Assessments (IQA), Methods to analyze integrity of databases (IA), record-matching, and Quality Function Deployment (QFD). The student will be able to recognize and use DQ and IQ concepts in information systems; e.g., recognize patterns of data and design deficiencies in systems; suggest appropriate DQ and IQ improvement plans; perform information quality assessments of organizations; apply data cleansing techniques to data warehouses and experience the influence of data quality indicators on decision making.

The student will study current journal articles that discuss the theoretical tenets of this emerging field of study. A combination of state-of-the-art literature review, in-depth discussions, and hands-on projects will be used to develop knowledge and ability to meet objectives.

MSTM 811
Information Technology Management for Competitive Advantage: Capstone Experience I
3 Credits
This course is the first of two sequential capstone courses that students in the MSTM program and the ISTM track will use to develop new skills and integrate and practice skills learned previously in the program. The course provides an integrated view of the organization from an external and internal perspective. This course will familiarize students with concepts and techniques for aligning enterprise information architectures to organizational goals and objectives. A primary learning technique applied during this

course is a semester-long team project.

MSTM 812
Information Technology Management for Competitive Advantage: Capstone Experience II
3 Credits
This course is the second of two sequential capstone courses that students in the MSTM program and the ISTM track will use to develop new skills and integrate and practice skills learned previously in the program. The course enables students to focus on how projects contribute to the strategic goals of the organization, selecting projects that best support the strategy of a particular organization and that in turn can be supported by the technical and managerial processes made available by the organization to bring projects to completion. Managing projects within an organizational context includes the processes related to initiating, planning, executing, controlling, reporting, and closing a project. Another aspect of project management includes managing the changes in organizations resulting from introducing or revising information systems. A primary learning technique applied during this course is a semester-long team project.

INTERNATIONAL COMPONENT

MSTM 800
Global Aspects of Technology Management
3 Credits
Students spend a week in an international residency. Dealing with technological changes across international markets and amidst global developments, virtual organizations, and management across cultures are the primary focus. Corporate site visits are combined with presentations by professors from non-U.S. universities and presentations by relevant practitioners.

MSTM Program Faculty

KAVOUS ARDALAN Associate Professor of Finance, 1998. *Degrees:* B.A., National University of Iran; M.A., Ph.D., University of California, Santa Barbara; Ph.D., York University, Toronto, Canada

WILLIAM S. BROWN Assistant Professor of Management, 1999. *Degrees:* B.A., Fairleigh Dickinson University; M.A., Montclair State University; M.B.A., Fairleigh Dickinson University; Ph.D., University of Pittsburgh

ANN E. DAVIS Assistant Professor of Economics, 1986; *Degrees:* B.A., Barnard College; M.A., Northeastern University; Ph.D., Boston College

LAURA EBERT Assistant Professor of Economics, 2002. *Degrees:* B.A., Bard College; M.A., University of Connecticut at Storrs; Ph.D., New School University

CRAIG FISHER Associate Professor of Information Systems, 1989. *Degrees:* B.S., State University of New York at Oswego; M.A., Ball State University, Indiana; Ph.D., State University of New York at Albany

ANDRES FORTINO Dean and Professor of Management, 2004. *Degrees:* B.S.E.E., City College of New York; M.E. (EE), City College of New York; Ph.D., City University of New York

MARGARET L. GAGNE Associate Professor of Accounting, 2000. *Degrees:* B.A., Huron College; M.B.A., University of South Dakota, Vermillion; Ph.D., Indiana University

JOANNE GAVIN Assistant Professor of Management, 2002. *Degrees:* B.S., University of New Orleans; M.B.A., University of New Orleans; Ph.D., University of Texas at Arlington

TOM G. GEURTS Associate Professor of Finance, 2001. *Degrees:* B.S., Higher Technical College, Zwolle; M.S., University of Amsterdam; Ph.D., Pennsylvania State University

JAN HARRINGTON Associate Professor of Information Systems, 1989. *Degrees:* B.S., University of Washington; M.L., University of Washington; Ph.D., Drexel University

JOAN E. HOOPES Assistant Professor of Information Systems, 1990. *Degrees:* B.S., M.B.A., Ph.D., Binghamton University

BEATE KLINGENBERG Assistant Professor of Management, 2003. *Degrees*: M.S., Chemistry, Friedrich-Alexander University of Erlangen-Nürnberg (Germany); Ph.D., Physical Chemistry, Friedrich-Alexander University of Erlangen-Nürnberg (Germany); M.B.A., Marist College

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ANNE BERINATO MATHEUS Lecturer of Information Systems and Director of Computer Literacy, 2001. *Degrees:* B.A., Marist College; M.A., Marist College; M.S.C.S., Marist College

VERNON Q. MURRAY Assistant Professor of Marketing, 1993. *Degrees:* B.A., City University of New York at Queens College; M.B.A., Michigan State University; Ph.D., University of Alabama

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ELIZABETH F. PURINTON Assistant Professor of Marketing, 2001. *Degrees:* B.S., University of Maine at Orono; M.B.A., University of Rhode Island; Ph.D., University of Rhode Island

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HELEN N. ROTHBERG Associate Professor of Management, 1995. *Degrees:* B.A., City University of New York at Queens College; M.B.A., City University of New York at Baruch College; M. Phil., City University of New York Graduate Center; Ph.D., City University of New York Graduate Center

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