

# MANAGEMENT (MG-UY)

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## **MG-UY 444X GUIDED STUDIES IN BUSINESS AND TECHNOLOGY MANAGEMENT (0.5-4 Credits)**

*Typically offered Fall, Spring, and Summer terms*

Guided study under the guidance of a TMI faculty member of a topic or area related to business and technology management. Department Approval Require

**Grading:** Ugrd Tandon Graded

**Repeatable for additional credit:** Yes

## **MG-UY 1002 FOUNDATIONS OF TECHNOLOGY MANAGEMENT (2 Credits)**

*Typically offered occasionally*

This course introduces the principles and practices of management. Management is viewed as a system of tasks and activities, including environmental scanning, planning, organizing, leading and controlling. Within each major task, is a series of processes, which show how to do what has to be done. Management is a science and an art; both aspects of management are covered in this course. Areas covered are management history, philosophy and the theory and practice of management planning, decision making, organizing, motivating and leading. Special emphasis is on providing the technical and managerial challenges presented by emerging and transformative technologies. Particular consideration is given to the managerial options available to both legacy and entrepreneurial organizations.

**Grading:** Ugrd Tandon Graded

**Repeatable for additional credit:** No

## **MG-UY 2004 Management of Information Technology and Systems (4 Credits)**

*Typically offered occasionally*

This course provides a foundation to understand the role and potential contributions of information technologies and systems in business organizations—what they are, how they affect the organization and its employees, and how they can make businesses more competitive and efficient. The course focuses on the current state of IT in organizations; challenges and strategic use of IT; IT infrastructure and architecture; building, implementing and managing IT applications; and emerging issues such as intelligent systems, business-process reengineering, knowledge management and group-support systems.

**Grading:** Ugrd Tandon Graded

**Repeatable for additional credit:** No

## **MG-UY 2014 Operations Management (4 Credits)**

*Typically offered occasionally*

A firm has the opportunity to create competitive advantage through proficient operations management. To do so, the firm first must recognize and establish the strategic role of its operations within the organization. Then, at the more detailed operational level, the firm must execute effectively and efficiently. This course examines the strategic role that the operations function can play and offers specific tools and techniques that a firm can use during implementation. | Prerequisite: MA-UY 1024 or MA-UY 1054 or MA-UY 1324 or an approved equivalent.

**Grading:** Ugrd Tandon Graded

**Repeatable for additional credit:** No

**Prerequisites:** MA-UY 1024 or MA-UY 1054 or MA-UY 1324 or an approved equivalent.

## **MG-UY 2024 Management of Business Information Systems and Data Technology (4 Credits)**

*Typically offered Fall*

This course provides recent coverage of information systems and computing technologies as they relate to effective decision-making process in technology management. The course explores the applications of MIS as a competitive tool and discusses the applications of this growing technology in business functional areas. The global, social, ethical, legal and organizational issues of MIS will be investigated. The course also provides a thorough coverage of the technology component of this fast-growing field and examines popular Internet business models. The new trends in Big Data will be explored and its technologies, applications, and various platforms will be investigated. The students will investigate these various issues by in-depth research, literature review, case studies, and active class participations and presentations.

**Grading:** Ugrd Tandon Graded

**Repeatable for additional credit:** No

## **MG-UY 2104 Organizational Behavior (4 Credits)**

*Typically offered occasionally*

This course focuses on the study of human behavior in innovative organizations. Emphasis is on teams, leadership, communication theory and organizational culture and structure. The course includes analyses of organizational behavior problems through case studies and participation in experiential learning.

**Grading:** Ugrd Tandon Graded

**Repeatable for additional credit:** No

## **MG-UY 2204 Financial Accounting (4 Credits)**

*Typically offered occasionally*

This course provides a solid foundation in constructing and interpreting financial statements. Topics include: accounting terminology, financial-statement preparation and analysis, liquidity and credit-risk ratios, depreciation calculations, revenue recognition, accrued liabilities and asset valuation. Also covered are the effects of equity transactions, cash flows and various accounting methods on financial statements.

**Grading:** Ugrd Tandon Graded

**Repeatable for additional credit:** No

## **MG-UY 2304 Marketing (4 Credits)**

*Typically offered occasionally*

This course is an undergraduate introduction to marketing. It discusses the fundamentals of marketing; e.g., the marketing mix, the role of the customer, marketing research and survey techniques. In addition, emerging marketing paradigms, like relationship marketing and online marketing, are introduced.

**Grading:** Ugrd Tandon Graded

**Repeatable for additional credit:** No

**MG-UY 2524 Microeconomics (4 Credits)***Typically offered Spring*

The course is an introduction to microeconomics. It assumes no prior knowledge of the subject. The course examines the fundamentals of microeconomics needed by technologists, relying to a considerable extent upon mathematical expression and representation. The principle topics covered are price theory, production and cost theory, the theory of the firm and market theory, including the practical relevance of these to the management of technology-intensive enterprises. The role of the state and of government regulation will be considered as a special topic. Students who take this course cannot receive credit for ECON-UA 2 or FIN-UY 2003. | Prerequisite: MA-UY 1024 or MA-UY 1054 or MA-UY 1324 or an approved equivalent.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**Prerequisites:** MA-UY 1024 or MA-UY 1054 or MA-UY 1324 or an approved equivalent.**MG-UY 2704 DESIGN THINKING FOR CREATIVE PROBLEM SOLVING (4 Credits)***Typically offered Fall and Spring*

In today's world, developing new and innovative products and services is the "golden mantra" of every organization. Companies are therefore looking for creative, innovative and collaborative employees. This course will introduce participants to design thinking, a human-centered approach to innovation that allows us to create meaningful and sustainable solutions (products, services, technology, experience, etc.). Probable Tandon MakerSpace related material fees. | Prerequisite: MakerSpace Safety Course

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**MG-UY 3002 Project Management (2 Credits)***Typically offered occasionally*

This course provides students with practical and best-practice project management theory, concepts and (hands-on) practical experience so that they may contribute effectively to and lead multicultural team projects framed for the new global economy. The practical component includes a team-based project that spans the duration of the course.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**MG-UY 3024 Management of Data Communications and Networking (4 Credits)***Typically offered occasionally*

This course introduces the fundamentals of modern telecommunications and networking such as components of data communication, data transmission, open-system interconnection (OSI), TCP/IP and other models, data link and network layers and local area networks (LANs). The course focuses on managerial issues related to the management of data communications and networking technologies. | Prerequisite: MA-UY 1024 or MA-UY 1054 or MA-UY 1324 or an approved equivalent; and MA-UY 1124 or MA-UY 1154 or MA-UY 1424 or an approved equivalent; and MG-UY 2004.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**Prerequisites:** MA-UY 1024 or MA-UY 1054 or MA-UY 1324 or an approved equivalent; and MA-UY 1124 or MA-UY 1154 or MA-UY 1424 or an approved equivalent; and MG-UY 2004.**MG-UY 3204 Introduction to Finance (4 Credits)***Typically offered occasionally*

This course introduces business finance for BTM majors. It emphasizes the financing and investment decisions of the financial manager, with special emphasis on examples from technological environments. Included are topics such as time value of money, asset valuation, risk analysis, financial statement analysis and capital budgeting. | Prerequisites: MA-UY 1024 or MA-UY 1054 or MA-UY 1324 or an approved equivalent; and MA-UY 1124 or MA-UY 1154 or MA-UY 1424 or an approved equivalent; and MG-UY 2204.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**MG-UY 3214 Advanced Corporate Finance (4 Credits)***Typically offered occasionally*

This course builds on the principles of basic corporate finance covered in MG-UY 3204. It prepares students to understand financial theory and how firms use modern finance for strategic and tactical decision-making. The critical issue of how these decisions affect the value of a firm and the returns of assets is addressed. Major topics include bond valuation, the CAPM model, portfolio design and modeling and option pricing using the Black-Scholes model. A strong emphasis is placed on using spreadsheets as a financial-modeling tool. | Prerequisites: MA-UY 1024 or MA-UY 1054 or MA-UY 1324 or an approved equivalent; and MA-UY 1124 or MA-UY 1154 or MA-UY 1424 or an approved equivalent; and MG-UY 3204.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**MG-UY 3224 Management Science (4 Credits)***Typically offered occasionally*

This course teaches students to create mathematical models of managerial problems. Types of models discussed include linear programming, integer-linear programming, non-linear programming, queuing models, decision-tree models, game-theoretic models, simulation models, inventory models and more. Each model is discussed in the context of the assumptions necessary for modeling and the robustness of the model's managerial recommendations. | Prerequisites: 8 credits of calculus: MA-UY 1024 or MA-UY 1054 or MA-UY 1324 or an approved equivalent; and MA-UY 1124 or MA-UY 1154 or MA-UY 1424 or an approved equivalent; and MA-UY 2054 or MA-UY 2224 or MA-UY 2212 and MA-UY 2222.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**MG-UY 3304 Introduction to Supply Chain Management (4 Credits)***Typically offered occasionally*

This course provides an undergraduate-level introduction to supply-chain management. The underlying objective is to introduce key supply-chain management concepts and examine relevant business practice. This course enables students to develop useful skills, in an increasingly global context, to analyze marketing, logistics, operations and channel-management issues. | Prerequisites: MG-UY 2004, MG-UY 2304 and MA-UY 2054 or MA-UY 2224 or MA-UY 2212 with MA-UY 2222.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No

**MG-UY 3404 Innovation Management (4 Credits)***Typically offered occasionally*

This course examines the key managerial features of technology-enabled innovation and new product development. It focuses on accessing innovative capabilities through R&D, acquisition, alliances, joint ventures and innovation-friendly cultures and organizations. The key perspective underlying this course is managerial. Although the innovation activities studied are overwhelmingly technology-enabled ones, success is largely determined by managerial factors. The interplay between the technology and management leading to innovation is a major concern of the discussion and work in this course. | Prerequisite: Junior student status.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**MG-UY 3714 DESIGN STRATEGIES (4 Credits)***Typically offered Fall and Spring*

As change has become one of the only constants in today's economy, established businesses are being disrupted, and business strategies need to be constantly reframed. To be successful companies cannot only acquire more customers. They also need to successfully their customers' changing needs, leverage technology to create new value propositions that are meaningful to them and generate revenues and sustainable growth for the business. To address these new demands, managers and entrepreneurs alike need a different set of tools and frameworks. Design thinking, a human-centered approach to innovation, one that starts with understanding what customers need and strategically connects to the organization offers such as set of tools. This course draws on design thinking to equip students taking this class with tools to address business challenges and develop innovative new products, services, and brand experiences, transformative value propositions and creative strategies and business models. The course's premise is that strategy is design rather than simply problem-solving. In other words, to resolve a given strategic issue, one needs to truly explore options before making a choice. Participants in this class will learn tools and develop skills that allow them to explore multiple options and develop new, creative and sustainable strategies. This course draws on design thinking to equip students taking this class with tools to address business challenges and develop innovative new products, services, and brand experiences, transformative value propositions and creative strategies and business models.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**Prerequisites:** MG-UY 2704.**MG-UY 3724 HUMAN-CENTERED PRODUCT DESIGN STUDIO (4 Credits)***Typically offered Fall and Spring*

This course is an industrial design overview for non-designers. It explores the industrial design process from researching and establishing user and client needs to developing product specifications, prototyping and iterating. It also covers conceptual and visual design, detail design, design for manufacturing, and design for environmental sustainability. It includes skills such as sketching, model making, 3 D printing techniques. The course is formulated as two short exercises and one semester-long project in which teams choose from several product design categories and develop their ideas from concept to prototype. Probable Tandon MakerSpace related material fees. | Prerequisite: MakerSpace Safety Course

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**Prerequisites:** MG-UY 2704.**MG-UY 3734 SERVICE DESIGN INNOVATION (4 Credits)***Typically offered Fall and Spring*

Products are used not in isolation but as part of a wider mesh of artifacts and interactions, both digital and non-digital. The discipline of service design takes this holistic view of a process or product, considering not just the use of an artifact but the wider service it is situated within across several 'touch points'. With a growing service-based economy, in many cases the product is the service, which challenges conventional views of what the designer creates. Services are complex to understand and design, and require a participatory approach with deep engagement with stakeholders. This Service Design Innovation course is for students with various backgrounds and diverse interests for their future careers: technologists who want to understand how the technology can support service innovation; designers who want to broaden their skills; product and project managers who want to understand the relationship between products, services, and design; policy makers who want to understand how to develop human-centered policies that create real impact; managers and entrepreneurs who want to understand how to create new innovative and sustainable system offerings.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**Prerequisites:** MG-UY 2704.**MG-UY 4004 Management Strategy in Technology Sectors (4 Credits)***Typically offered occasionally*

This course provides an overview of the process of implementing a successful management strategy in an information-, technology- and knowledge-intensive environment. Fundamental topics include the development of strategic vision, objectives and plans; implementation of strategy and the evaluation of performance; industry and competitive analysis; SWOT analysis and competitive advantage and sustained advantage. Advanced concepts include strategic positioning in global markets, Internet strategy, strategy in diversified firms, and interactions between organizational structure and strategy and between ethics and strategy. | Prerequisites: MG-UY 3204 and MG-UY 3404.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**MG-UY 4014 INTRODUCTION TO DIGITAL BUSINESS (4 Credits)***Typically offered occasionally*

Since its introduction, the Internet has changed how businesses work. In addition to creating new opportunities, the Internet has revolutionized existing businesses and entire industries. This course provides an undergraduate-level introduction to Digital Business. The main objectives of this course are to (1) understand how pre-digital-era companies can capture the new opportunities of the digital world, (2) discuss the major business concepts and issues in this domain and (3) develop high-quality content based on team discussion and individual/group research. | Prerequisites: MG-UY 3204, MG-UY 3002, MG-UY 3304/MG-UY 3214 and MG-UY 3404.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No

**MG-UY 4214 Financial Strategy (4 Credits)***Typically offered occasionally*

This course deals with the financial strategy of modern firms. Topics include planning and implementation of financial strategies for start-up businesses and the utilization of venture capital; diverse issues related to designing financial strategies of rapidly growing companies after experiencing an IPO; challenges in constructing a financial strategy while undergoing a major corporate restructuring; key components of financial strategies for companies facing rapidly changing technological and competitive environments; and development of financial strategies for mature companies and declining business. | Prerequisites: MG-UY 2204, MG-UY 3204 and MG-UY 3214.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**MG-UY 4404 ENTREPRENEURSHIP (4 Credits)***Typically offered occasionally*

This course focuses on key aspects of entrepreneurship as a critical engine for innovation. It also treats entrepreneurship as a state of mind that is not limited to small firms. Students discuss current theories and practices related to starting and managing entrepreneurial enterprises, emphasizing firms in technology-, information- and knowledge-intensive environments. Particular attention is paid to the critical issues of (1) identifying opportunities that provide competitive advantage; (2) the development of a solid business plan; (3) the marketing of new ventures; (4) entrepreneurial business operations, including human-resource and process management; (5) ethical and social issues in entrepreneurial firms; and (6) financial management and fund raising for entrepreneurial firms. | Prerequisites: Junior or senior student status.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**MG-UY 4504 Global Perspectives on Technology Management: A Capstone Project Course (4 Credits)***Typically offered occasionally*

This course provides students with knowledge of current theories and practices related to managing international and multinational firms. Students study the ways in which international management differs from the management of a firm residing solely within domestic boundaries. Topics covered include planning, organizing, HR management, communication and negotiation and coordination and control of international endeavors. Case studies are used extensively to focus the class on technological examples of problems in international management. Students undertake a term project that either (1) develops a business plan for a technological international venture, (2) creates a case study of a technological firm's challenges in international management or (3) analyzes an technological industry's position vis-à-vis international management. | Prerequisites: MG-UY 3002, MG-UY 3024, MG-UY 3204, MG-UY 3404, and MG-UY 3214 or MG-UY 3304.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**MG-UY 4514 Honors Capstone Project in Tech, Innovation and/or Info Mgmt & Entrepreneurship I (4 Credits)***Typically offered occasionally*

In this course, qualified honors students work with a faculty member (and perhaps graduate students) on an advanced topic in technology, innovation and/or information management or entrepreneurship. This effort may be directed toward developing theory, developing case material, or developing a business plan and business strategy for a new venture, or another project of this caliber. A Thesis or Honor's Thesis may compose part of this Honor's Capstone course. | Prerequisites: senior status, 3.6 GPA or better through the junior year in major; all courses specified by the project adviser.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**MG-UY 4524 Honors Capstone Project in Tech, Innovation and/or Info Mgmt & Entrepreneurship II (4 Credits)***Typically offered occasionally*

In this course, qualified honors students work with a faculty member (and perhaps graduate students) on an advanced topic in technology, innovation and/or information management or entrepreneurship. This effort may be directed toward developing theory, developing case material or developing a business plan and business strategy for a new venture, or another project of this caliber. A Thesis or Honor's Thesis may compose part of this Honor's Capstone course. | Prerequisites: senior status, 3.6 GPA or better through the junior year in major; all courses specified by the project adviser including MG-UY 4514.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No**MG-UY 4601 Engineering Innovation Minor Boot-Camp (1 Credit)***Typically offered all terms*

This "boot camp" is a condensed introduction to entrepreneurship in the Tandon School of Engineering's (SOE) Engineering and Innovation Minor (EIM) which is focused upon internship experiences at the Tandon Future Labs. This multi-disciplinary course acquaints and acclimatizes students to the worlds of entrepreneurship and intrapreneurship, while preparing students outside of these worlds academically to capture as much value as possible during the required courses for the EIM required MG-UY 4404 Entrepreneurship course with soft and hard skills in areas such as: finance, decision making, design thinking, problem solving, leadership, and beyond. This boot-camp will ensure students learn the skills necessary to maximize learning potential during the semester and graduate from the minor with the necessary skills to thrive in an entrepreneurial and intrapreneurial environment in their careers. | Prerequisites: Matriculation in the Tandon Engineering and Innovation Minor (EIM) or Permission by EIM Director.

**Grading:** Ugrd Tandon Graded**Repeatable for additional credit:** No

**MG-UY 4603 Technology Management—Internship and Service (3 Credits)**

*Typically offered occasionally*

This course provides undergraduate students with the opportunity to learn by working in the field under faculty supervision. This course exposes undergraduates to relevant, state-of-the-art and best practices in modern technology management from the perspective of reflective involvement and interaction in the field. In addition, a service often may be a significant part of this course. The course occurs largely in the field. A member of the TM & I faculty oversees this course; but other faculty members may be involved in directing specific field assignments. This course is open to all BTM majors and requires the permission of the Program Director of the BTM Program. Note: BTM Students may enroll in a maximum of 6 total pre-approved internship related credits which will only count towards Free Electives.

**Grading:** Ugrd Tandon Graded

**Repeatable for additional credit:** Yes

**MG-UY 4904 BS THESIS IN BUSINESS & TECH MANAGEMENT (4 Credits)**

*Typically offered occasionally*

BTM students who earn an overall 3.0 GPA and a 3.4 GPA or better in technology management courses through their junior year of study qualify for an optional thesis. They are advised to meet with the TM & I Dept. Head or BTM Program Director in advance of completing their junior year. Before registering for the BTM Thesis, the student must find a Technology Management and Innovation Department faculty member agreeing to serve as thesis advisor and then receive the TM & I Dept. Head's approval in writing before proceeding. BTM Thesis students are permitted to replace either the Honor's Capstone Project I MG-UY 4514 or Honor's Capstone Project II MG-UY 4524 with MG-UY 4904. This course cannot be repeated.

**Grading:** Ugrd Tandon Graded

**Repeatable for additional credit:** No