OPERATIONS MANAGEMENT (OPMT)

OPMT 350. Project Management. 3 Units.
Project management is concerned with the management and control of a group of interrelated tasks required to be completed in an efficient and timely manner for the successful accomplishment of the objectives of the project. Since each project is usually unique in terms of task structure, risk characteristics and objectives, the management of projects is significantly different from the management of repetitive processes designed to produce a series of similar products or outputs. Large-scale projects are characterized by a significant commitment of organizational and economic resources coupled with a high degree of uncertainty. The objective of this course is to enhance the ability of participants to respond to the challenges of large-scale projects so that they can be more effective as project managers. We study in detail up-to-date concepts, models, and techniques useful for the evaluation, analysis, management, and control of projects. Offered as OPMT 350, OPMT 450 and SCMG 450. Prereq: OPRE 301.

OPMT 377A. Business Forecasting. 1.5 Unit.
This course introduces nonmathematical managers to the major quantitative models designed for sound demand and system forecasting in today's complex and increasingly uncertain supply chains. Topics will also include reliability of historical data sets to forecast future patterns. The course will also cover non-quantitative tools to forecast demand for new products, services and technologies when historical data are not readily available. Emphasis is placed on a general understanding of theory, mechanics, application potential, available software packages, and templates. Offered as OPMT 377A, OPMT 477A and SCMG 477A. Prereq: OPRE 207 and OPRE 301.

OPMT 377B. Enterprise Resource Planning in the Supply Chain. 1.5 Unit.
Enterprise resource planning is the dominant system by which companies translate the needs from their customers into the detailed plans that the company must perform to meet the customer needs, and the resulting support the company will need from its suppliers. As such, it is a central player in the process of supply chain management. In this course, we study both the quantitative and qualitative concepts and techniques to help manage a company's operations to perform these important translation and planning tasks in order to help the company be successful. A major emphasis during the course is the design of processes and procedures (algorithms) for solving very complex (wicked) problems as a part of both class discussions and while working on case studies, as well as critiquing the designs so as to clearly understand their limitations. Offered as OPMT 377B, OPMT 477B, and SCMG 477B Prereq or Coreq: OPMT 377A.

OPMT 412. Lean Services Operations. 3 Units.
The course will be delivered over four modules: 1) Service Process Blueprints, 2) Managing Capacity in Service Systems, 3) Mapping the Value Stream (current and future state), and 4) Inventory Management in Service Systems. The topics considered are viewed in the context of healthcare management, financial services, insurance firms, call centers, back-office operations, and other applications. Through these topics, the participants will be trained in tools that help them understand customers' expectations and needs and to identify service system characteristics that can meet these needs. We will learn how to identify errors in service and troubleshoot these problems by identifying the root causes of errors. Subsequently, we will discuss how one can modify the product or service design so as to prevent defects from occurring. Finally, we will establish performance metrics that help evaluate the effectiveness of the Lean system in place. These efforts will result to improved quality. This course is not oriented toward specialists in service management. Its goal is to introduce you to the environments and help you appreciate the problems that operations managers are confronted with. Then, we will typically discuss some system specifics and emphasize the principles and issues that play key role in their management. Offered as HSMC 412 and OPMT 412.

OPMT 420. Six Sigma: Methodologies for Process Improvement. 1.5 Unit.
Six Sigma (6s) is a collection of tools and techniques for process improvement and quality management. It is recognized around the world as the standard toolkit for rigorous process measurement, management, and control. Many leading companies recognize the value of employees with these skills, offering a potential edge to job seekers with 6s credentials. Students meeting the required standards of performance will earn a Green Belt Certification in Six Sigma and Quality Management from the Weatherhead School of Management (in conjunction with SCMG 495 - Supply Chain Management Capstone. In this course, we will learn and employ the five steps of DMAIC: Define, Measure, Analyze, Improve, and Control. A number of other related methodologies will also be covered in this course. They range from the building blocks of quality management (such as cause-and-effect diagrams) to more complex tools such as failure mode and effects analysis-FMEA). As is likely obvious from the name of the course, statistical concepts are central to Six Sigma, although our focus will be on application, not theory. Offered as OPMT 420 and SCMG 420. Prereq: (SCMG/MSOR 433 or OPRE 433 or MBAC 511 or MBAP 403 or HSMC 457). Prereq or Coreq: (SCMG/MSOR 406 or MBAP 408 or MBAC 507 or HSMC 412) or Requisites Not Met permission.

OPMT 422. Lean Operations. 3 Units.
In this course, students will be taught how to identify inefficiencies associated with overproduction, waiting, transport, extra processing, inventory, motion and defects. One-by-one, areas of inefficiencies are to be identified and improved while educating the workforce towards continual improvement. Similarly, participants will be trained to reduce lead times in areas such as engineering design, order entry, purchasing, order fulfillment, receiving, production, packaging, shipping, invoicing and collection. The above improvements will lead to cost reductions. Students will be trained in costing techniques, target pricing, and cost maintenance. The course will be delivered along the following themes: 1) Mapping the Value Stream (current and future state) 2) Workplace Organization: 5S & Safety, 3) Defect Reduction and Error Proofing, 4) Quick Changeover, 5) Standard Operations, 6) Total Productive Maintenance, 7) Visual management, 8) One-piece flow, 9) Lean Metrics. This course is not oriented toward specialists in operations management. Its goal is to introduce you to the environments and help you appreciate the problems that operations managers are confronted with and the key issues in their management. Offered as OPMT 422 and SCMG 422. Prereq: BUAI 406B, or MBAC 507, or MBAP 408.

OPMT 450. Project Management. 3 Units.
Project management is concerned with the management and control of a group of interrelated tasks required to be completed in an efficient and timely manner for the successful accomplishment of the objectives of the project. Since each project is usually unique in terms of task structure, risk characteristics and objectives, the management of projects is significantly different from the management of repetitive processes designed to produce a series of similar products or outputs. Large-scale projects are characterized by a significant commitment of organizational and economic resources coupled with a high degree of uncertainty. The objective of this course is to enhance the ability of participants to respond to the challenges of large-scale projects so that they can be more effective as project managers. We study in detail up-to-date concepts, models, and techniques useful for the evaluation, analysis, management, and control of projects. Offered as OPMT 350, OPMT 450 and SCMG 450. Prereq: MBAC 511 or MBAP 403 or HSMC 457 or HSMC 412 or Requisites Not Met permission.

OPMT 460. Supply Chain Strategy. 1.5 Unit.
Have you ever wondered what it takes to manage a successful supply chain? It all comes down to the right strategy. Supply Chain Management Strategy is the indispensable direction for managing a successful supply chain. This course reviews how organizational strategies can inform operations and supply chain strategies. Several cases in various industries are discussed to illustrate how businesses employ various supply chain business models to achieve higher efficiencies, better, quality, faster service, and subsequently promote business objectives. Offered as OPMT 460 and SCMG 460.

OPMT 470. Supply Chain Risk Management. 1.5 Unit.
A Supply Chain comprises firms, organizations, and individuals, linked through material, information, and financial flows, and whose activities enable products and services to be created and reach the consumers. Risk Management is the process of identifying risks, forecasting their impact, devising, mitigation strategies, and applying those strategies in anticipation or in response to adverse events. Supply Chain Risk Management (SCRM) is a set of solutions for identifying, measuring, preparing for, and mitigating adverse events in supply chains. As the widespread use of outsourcing is stretching supply chains further geographically and turning supply networks into intricate, global, and fragile webs, supply disruptions happen more frequently than ever and lead to substantial financial losses. A 2015 National Institute of Standards and Technology study concluded that "the likelihood that a manufacturing organization will not experience a supply chain disruption in a twenty-four month period is a mere 2%." According to research, firms that experienced supply glitches have suffered tremendous erosion in the shareholders' value (the abnormal return on stock of these companies was negative 40%). Disruptions are only one example of supply risks. From commodity price fluctuations to product adulteration, from cyber security to patent violations, from regulatory compliance to supplier bankruptcies, supply chains are rife with risks and opportunities if you know how to recognize and take advantage of them. In this course, you will learn the best industry practices and be exposed to the most current academic insights on SCRM. You will know the process for SCRM, a variety of well-known and emerging supply risks, and the unique challenges of managing each one. You will also learn advantages and disadvantages of different risk mitigation tools. You will take away a number of useful analysis tools that you can immediately apply at your job. You will know the terminology of the field, the definitions, and the "state of the art" techniques. By the end of the course, you will be able to evaluate companies' performance with respect to supply risk management, and you will be able to create, contribute to, and run a supply-risk management program at your company. Offered as OPMT 470 and SCMG 470.

OPMT 475. Global Supply Chain Logistics. 3 Units.
The course will attempt to achieve two objectives: (1) to develop your skills in solving specific types of logistics/supply chain problems, and (2) to improve your capabilities in dealing with unstructured problems of the type encountered by intermediate and top managers. Skill development is accomplished through lecturers, case studies, homework, and examinations. These skills are valuable for addressing specific problems where the given technology is useful in treating them. On the other hand, broader analytical skills are enhanced using case studies and class discussion, which allow problem solving to be placed in a larger context. Defining a framework for analysis, applying concepts and principles, and commenting on the analysis of others help to achieve the second objective. Of course, these objectives interplay throughout the course of study. Offered as OPMT 475 and SCMG 475. Prereq: (MBAP 408 or MBAC 507 or MBAP 484) and (MBAC 511 or MBAP 403 or MBAP 472) or Requisites Not Met permission.

OPMT 476A. Strategic Sourcing in Supply Chain. 1.5 Unit.
The primary purpose of the course is to provide a comprehensive introduction to supply issues in manufacturing and service organizations. Procurement and supply management has evolved as a strategic function across various industries. Recent volatility in commodity prices has further enhanced the challenges in procurement. This course explores sourcing strategies in global supply chains to reduce cost and enhance the competitiveness of the firm. This course will provide you with a framework for thinking about strategic sourcing and tools to procure commodities and services efficiently. Offered as OPMT 476A and SCMG 476A. Prereq: Not available to Master of Supply Chain Management students.

OPMT 477A. Business Forecasting. 1.5 Unit.
This course introduces nonmathematical managers to the major quantitative models designed for sound demand and system forecasting in today's complex and increasingly uncertain supply chains. Topics will also include reliability of historical data sets to forecast future patterns. The course will also cover non-quantitative tools to forecast demand for new products, services and technologies when historical data are not readily available. Emphasis is placed on a general understanding of theory, mechanics, application potential, available software packages, and templates. Offered as OPMT 377A, OPMT 477A and SCMG 477A. Prereq: MBAC 511 or MBAP 403 or requisites not met permission.

OPMT 477B. Enterprise Resource Planning in the Supply Chain. 1.5 Unit.
Enterprise resource planning is the dominant system by which companies translate the needs from their customers into the detailed plans that the company must perform to meet the customer needs, and the resulting support the company will need from its suppliers. As such, it is a central player in the process of supply chain management. In this course, we study both the quantitative and qualitative concepts and techniques to help manage a company's operations to perform these important translation and planning tasks in order to help the company be successful. A major emphasis during the course is the design of processes and procedures (algorithms) for solving very complex (wicked) problems as a part of both class discussions and while working on case studies, as well as critiquing the designs so as to clearly understand their limitations. Offered as OPMT 377B, OPMT 477B, and SCMG 477B Prereq or Coreq: OPMT 477A or MBAC 518.

OPMT 478. Operational Excellence. 3 Units.
This course focuses on the essence, principles, and practices of total quality management (TQM) and Operational Excellence. Students learn management issues of identifying, analyzing, and implementing improvement projects in organizations. Topics are mostly non-quantitative with a focus on challenging aspects of quality management that students need to know beyond green belt certification such as learning to see processes better, defining quality ethically, analyzing side effects of change, and leading Kaizen, benchmarking, and brainstorming sessions. The course involves a rigorous real-world project of continuous improvement. Students will also have an opportunity to visit a local plant to get hands on experience with a real Kaizen event. Several guest talks are also scheduled to invite Black Belt professionals to discuss their experiences with quality management in Supply Chain. Offered as OPMT 478 and SCMG 478. Prereq: OPMT 420 or IIME 440.

OPMT 480. Blockchain Technology in Supply Chain Management. 1.5 Unit.
This course is intended to provide students with a solid foundation in blockchain basics and recent innovations and how this emerging technology can disrupt supply chains by addressing problems related to inefficiency, opacity, and fraud. We will cover fundamentals of blockchain technology such as distributed ledger, public key cryptography, the Bitcoin protocol, and proof-of-work consensus mechanism, as well as the Ethereum blockchain, proof-of-stake, smart contracts, oracles, layer 2 scaling solutions, and Solidity for implementing smart contracts. Furthermore, the course explores how blockchain technology can aid supply chain systems in lowering costs, ensuring product quality, enhancing speed, minimizing risks, promoting flexibility, and facilitating sustainable practices. The course also discusses various applications of blockchain technology in supply chain management, including its use in the food and beverage industry, healthcare and pharmaceutical industry, and supply chain finance. Lastly, the course highlights how combining blockchain technology with other cutting-edge technologies, such as artificial intelligence (AI), can amplify its value to supply chains. Offered as OPMT 480 and SCMG 480.

OPMT 481. Artificial Intelligence for Business Management. 1.5 Unit.
In an era marked by rapid technological advancements and an abundance of data, the role of Artificial Intelligence (AI) in transforming business practices has become pivotal. This course aims to demystify AI and elucidate its rapidly growing influence in the business world. We will cover the fundamentals of AI, its practical applications in various business sectors, and the strategic integration of AI in business processes. Throughout this course, students will delve into the core technologies underpinning AI, including deep learning, computer vision, natural language processing, and generative AI, and explore how these technologies are revolutionizing marketing, finance, accounting, operations, supply chain management, and customer relations. The course also provides a high-level overview of how AI is employed in decision-making and improving business operations. Furthermore, the course addresses the crucial aspects of ethics, legal compliance, and societal impacts of AI implementation in business. By exploring case studies and real-world applications, students will gain a nuanced understanding of the opportunities and challenges presented by AI in the business context. This course requires no coding background and is tailored for management and business students. Familiarity with basic statistical methods (e.g., linear regression) is needed. Offered as OPMT 481 and SCMG 481. Prereq: MBAC 511 or MBAP 403 or SCMG 433 or BUAI 433.

OPMT 491. Revenue Management. 3 Units.
This course will focus on the theories and applications of data techniques to analyze demand models, and use optimization techniques to inform strategic decision making upon pricing and revenue management problems. The key ingredients of the class include the use of sophisticated data and optimization tools towards: - Mastering static and dynamic demand models - Understanding consumer choice behaviors - Understanding and formulating firm policies based on price response - Creating optimization toolkits for organizational decision making - Understanding and formulating competitive response The course is "tools agnostic" - you are welcome to use any of the available software packages (like MS Excel, Stata, SPSS) and programming languages (like R, Python or Matlab). Offered as OPMT 491 and SCMG 491. Prereq: (SCMG 433 or BUAI 433 or MBAC 511 or MBAP 403 or OPRE 207) and (SCMG 406 or BUAI 406B or MBAP 408 or OPRE 301 or MBAC 507).

OPMT 501. Special Problems and Topics. 1 - 18 Units.
This course is offered, with permission, to students undertaking reading in a field of special interest.