Master of Science in Manufacturing Leadership
Program Overview

RIT’s Master of Science in Manufacturing Leadership (MML) is designed for experienced professionals who want to optimize operational effectiveness across manufacturing and service organizations. The program integrates business and engineering courses to build the cross-functional skills and knowledge critical for driving process excellence in operations, manufacturing, supply chain management, project planning and execution.

Preparing individuals and organizations to compete in a complex global economy

The MML program emphasizes applied learning, cross-discipline and cross-cultural team leadership, and continuous improvement. Program participants build core capabilities including:

- Leadership and management skills that emphasize systems thinking, project management, relationship management, risk management, and innovation strategies
- Business planning, including a comprehensive understanding of outsourcing and offshoring, financial management, and total life-cycle cost
- Global supply chain management, including strategy development and execution, logistics, quality and delivery assurance and supply chain optimization
- Multi-site production and operations management, including managing distributed teams, process technology transfer to international locations, facility design, manufacturing strategies, service operations and regulatory issues
- Lean Six Sigma and other continuous improvement practices applicable to operations and manufacturing
Curriculum

The 30-semester-credit MML program consists of 9 business and engineering courses, including one elective, plus a Capstone project (3 credits). The program is offered fully on-line or as a blend of on-line and on-campus courses.

- Organizational Behavior and Leadership (MGMT-740)
- Supply Chain Management (ISEE-703)
- Lean Six Sigma Fundamentals (ISEE-682)
- Manufacturing Systems (ISEE-745)
- Global Facilities Planning (ISEE-723)
- Engineering of Systems I (ISEE-771)
- Systems and Project Management (ISEE-750) or Project Management (BUSI-710)
- Accounting for Decision Makers (ACCT-603) or Cost Accounting in Technical Organizations (ACCT-794)
- MML Capstone (ISEE-793)
- Elective

Capstone Project

Program participants are encouraged to focus their Capstone project on a real-world problem faced by their own organizations. The Capstone experience is designed to help students synthesize the entirety of their learning by improving a process or developing a solution to a manufacturing or services management challenge within their organizations. Capstone projects deliver significant financial savings and process efficiencies while substantially increasing the visibility of the students.
Course Descriptions

Organizational Behavior and Leadership (MGMT-740) 3 credits
This course examines why people behave as they do in organizations and what managers can do to improve organizational performance by influencing people’s behavior. Students will be exposed to the ways in which organizations and their members affect one another and to different frameworks for diagnosing and dealing with problems in organizational settings. Topics include motivation, team building, conflict resolution, leadership, organizational change, and managing organizational cultures.

Supply Chain Management (ISEE-703) 3 credits
Supply chain management is unique in that it is one of the oldest business activities and yet has been recently “discovered” as a potentially powerful source of competitive advantage. Supply chain system activities – planning production levels, forecasting demand, managing inventory, warehousing, transportation, and locating facilities have been performed since the start of commercial activity. It is difficult to visualize any product that could reach a customer without a consciously designed supply chain. Yet it is only recently that firms have started focusing on supply chain management. There is a realization that no company can do any better than its supply chain and logistics systems. This becomes even more important given that product life cycles are shrinking and competition is intense. Logistics and supply chain management today represents a great challenge and a tremendous opportunity.

Systems and Project Management (ISEE-750) 3 credits
Systems and Project Management ensures progress toward objectives, proper deployment and conservation of human and financial resources, and achievement of cost and schedule targets. The focus of this course is on the utilization of a diverse set of project management methods and tools. Topics include strategic project management, project and organizational learning, cost, schedule planning and control, structuring of performance measures and metrics, technical teams and project management, information technology support of teams, risk management, and process control. Course delivery consists of lectures, speakers, case studies, and experience sharing, and reinforces collaborative project-based learning and continuous improvement.

Manufacturing Systems (ISEE-745) 3 credits
This course will provide an introduction to concepts and techniques in the design and analysis of production systems. A blend of traditional and modern approaches is brought into the classroom. At the end of the term the student will be able to assess and analyze the performance of a given manufacturing system as well as to provide a framework for system redesign and improvement. Concepts such as lean manufacturing and setup time reduction are included in the context of the course.
Lean Six Sigma Fundamentals  (ISEE-682)  
This course presents the philosophy and methods that enable participants to develop quality strategies and drive process improvements. The fundamental elements of Lean Six Sigma are covered along with many problem solving and statistical tools that are valuable in driving process improvements in a broad range of business environments and industries. Successful completion of this course is accompanied by “yellow belt” certification and provides a solid foundation for those who also wish to pursue a “green belt.” (Green belt certification requires completion of an approved project and exam, both of which are beyond the scope of this course).

Global Facilities Planning  (ISEE-723)  
Facilities planning determines how an activity’s tangible fixed assets best support achieving the activity’s objective. This course will provide knowledge of the principles and practices of facility layout, material handling, storage and warehousing, and facility location for manufacturing and support facilities. Tools for sizing the resources needed, planning, design, evaluation, selection, and implementation will be covered. The focus of the course will cover both management and design aspects, with the focus being more heavily on the management aspects.

Accounting for Decision Makers  (ACCT-603)  
A graduate-level introduction to the use of accounting information by decision makers, the focus of the course is on two subject areas: (1) financial reporting and the use of general-purpose financial statements by internal and external decision makers; and (2) the development and use of special-purpose financial information intended to assist managers in planning and controlling an organization’s activities. Generally accepted accounting principles and issues related to International Financial Reporting Standards are considered while studying the first subject area and ethical issues impacting accounting are considered throughout.

Engineering of Systems I  (ISEE-771)  
The engineering of a system is an essential aspect of its development that focuses on the overall concept, performance requirements, and behavioral aspects of the system. This course treats the creation of products, product platforms and product families as systems that create value for both the customer and the enterprise. Topics include value creation and strategy, product development processes, translating market requirements to system requirements, functional analysis, development of the system’s architecture, development of platforms and modules, concept generation and selection, design for “X” (manufacturing/assembly/service/environment, etc.) and life cycle costing. Students will learn several systems analysis techniques and apply them in a team-based project.
MML Capstone Project (ISEE-793)  3 credits
The purpose of the project is for students to demonstrate integrative application of knowledge and skills that they have acquired during the program. The Capstone project will be oriented to the solution of manufacturing, operations, or supply chain management problem or to technically related processes. Each project will define an actual problem and solve it, or select and develop a needed process. A suitable project will be multi-disciplinary or multi-functional in nature and will have significant impact on one or more competitive capabilities of the organization, e.g. quality, lead time, cost, flexibility, or service.

Elective Course  3 credits
A few examples are provided below. Students may select from a much broader list of courses – descriptions and titles are available upon request.
- Decision & Risk Benefit Analysis (ISEE-751)
- Advanced Project Management (BUSI-711)
- Breakthrough Thinking, Creativity, and Innovation (SERQ-713)

Admission
Candidates should have an undergraduate degree from an accredited institution with a minimum GPA of 3.0, and at least two years of experience in a manufacturing or service organization or business environment. While no graduate entrance exam is required, admitted students must possess prerequisite knowledge at the introductory course level in probability and statistics, and engineering economy or basic finance. Applications can be submitted to RIT at any time – admission is on a rolling basis.

While no graduate entrance exam is required, admitted students must possess prerequisite knowledge and skills at the introductory course level in the following areas:
- Probability and statistics
- Engineering economy or basic accounting

Program cost
The MML program is priced at RIT’s part-time graduate tuition rate (https://www.rit.edu/fa/sfs/), currently $1,742 per credit or $52,260 for the entire 30-credit program. Students may qualify for financial aid, usually in the form of low-interest loans. Visit the financial aid website at http://www.rit.edu/emcs/financialaid/graduate.html or call (585) 475-2186 for information and assistance.

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