Master of Engineering in Engineering Management

Graduate Manual

RIT

Industrial and Systems Engineering Department

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1 Master of Engineering Degree in Engineering Management

The Master of Engineering in Engineering Management program uses a blend of industrial and systems engineering (ISE) courses and courses from the College of Business to focus on the management of the engineering and technological enterprise. It combines technological expertise with managerial skills.

Engineering Management is concerned with understanding the technology involved in an engineering project and the management process through which the technology is applied. This concentration deals with the dual role of the engineering manager; both as a technologist and a manager. The object is to provide a background in areas commonly needed in this role, such as organizational behavior, finance, and accounting, in addition to industrial engineering expertise. Each student should develop a program of study in conjunction with their advisor that contains business management content to complement the engineering course work.

2 Admission Requirements

***The ME Engineering Management program is no longer accepting applications for admission.**

Admission to the ME Engineering Management graduate program is determined based on the full evaluation of the application and accompanying material including undergraduate degree program, transcript, and GPA, GRE scores (if required), TOEFL scores (if required), letters of recommendation, and 1-page statement of purpose. The GRE is required for students without a degree from an ABET accredited institution. The GRE is optional (but recommended) for all other applicants.

Although applications may be submitted at any time, for admission to RIT in the fall semester of the next academic year, the following target dates should be observed:

Application Timeline for Fall Semester:

- January 15: All application materials should be received
- RIT will target an admission decision within six weeks of receiving the completed application. **Note**: the review of the application will not begin until all application materials have been received.

The general entrance requirements consist of a BS degree in engineering, mathematics or science, and a minimum equivalent cumulative undergraduate GPA of 3.00/4.00. A minimum TOEFL score of 80 is required for students that do not have English as their first language. All students must have completed an undergraduate course in Probability and Statistics. If not, admitted students will need to complete the bridge course, ISEE 325 Engineering Statistics and Design of Experiments. For students with a BS in Math or Science (Physics, etc.) but without an engineering degree, some bridge coursework in the basic engineering sciences may be necessary prior to full admission into one of the programs. Students with a Bachelor's degree from a Technology program, with a very high GPA, may be permitted to pursue a degree in Engineering Management at RIT under the following conditions:

a. They will be required to have completed the RIT undergraduate courses below (or equivalent) with an overall grade point average of 3.00 or higher.

b. These courses do not carry any graduate credit and are in addition to the credits needed for the ME degree. Equivalent courses at other schools may be substituted. There may be other undergraduate courses that are needed in order to prepare the student for specialization in specific areas.

c. A student is expected to complete a substantial portion of the set of courses below before submitting an application for admission to the ME program in Engineering Management.

MATH 181	Project-Based Calculus I	MATH 251	Probability & Statistics
MATH 182	Project-Based Calculus II	ISEE 325	Engineering Statistics and Design of Experiments
MATH 221	Multivariable Calculus	ISEE 200	Computing for Engineers
MATH 233	Linear System and Differential Equations	ISEE XXX+	At least 3 upper division ISE courses to be selected as appropriate

3 Graduate Scholarships and Assistantships

The expectation for students receiving scholarships include (but are not limited to) the following:

- Being present at RIT during the academic semesters including the weeks of exams and excluding official institute breaks (between semesters, winter break, etc.). The RIT academic calendar is announced well in advance of each academic year. Students must consult this when making travel reservations, etc.
- Attend and perform well in classes. Students must maintain a minimum GPA of 3.00 to remain in good academic standing.
- Make good progress towards completing the degree program within two academic years by taking classes.
- Behaving in an ethical manner inside and outside of class.

Graduate students should be aware that not fulfilling the expectations of graduate tuition scholarships may result in a corresponding reduction in scholarships. Furthermore, the items outlined above will be taken into account when evaluating graduate scholarship awards in future semesters.

In general, graduate assistantships from the ISE Department are not available for Master of Engineering students.

4 Advisor

The Graduate Program Director will serve as the advisor for students enrolled in the ME Engineering Management program. It is the responsibility of the student to meet with the advisor on a regular basis to ensure the requirements of the degree are being met.

5 Graduation and Degree Requirements

The ME Engineering Management degree will be awarded upon successful completion of a minimum of 30 credits that is equivalent to 10 courses including a 3 credit capstone project course.

In accordance with Institute policy, all graduate programs must be completed within seven years after taking the first graduate course(s) that applies to the program. Exceptions to the seven year rule require a petition to the Dean of Graduate Studies with an explanation as to why the student will be unable to complete the program within seven years. This request

must be accompanied by a letter of from the Director of ISE Graduate Programs. The request must be make prior the reaching the seven year limit. Approval is not automatic.

The ME Engineering Management degree requires that students complete 30 credits consisting of 10 three-credit courses including the capstone course. The coursework must meet the following requirements:

Required Courses:

- ISEE-750 Systems & Project Management
- ISEE-760 Design of Experiments
- ISEE-771 Engineering of Systems I
- ACCT-794 Cost Management in Technical Organizations

Select 3 Engineering Management Elective Courses *(at least 1 Engineering Management elective must be ISEE-xxx):*

- ISEE-703 Supply Chain Management
- ISEE-704 Logistics Management
- ISEE-720 Production Control
- ISEE-728 Production Systems Management
- ISEE-751 Decision and Risk Benefit Analysis
- ISEE-752 Decision Analysis
- ISEE-761 Forecasting Methods
- ISEE-772 Engineering of Systems II
- ACCT-603 Accounting for Decision Makers
- ACCT-706 Cost Management (prerequisite ACCT-603)
- BANA-780 Advanced Business Analytics
- ESCB-705 Economics and Decision Modeling
- FINC-721 Financial Analysis for Managers (prerequisite ACCT-603)
- FINC-761 Stock Market Algorithmic Trading
- INTB-730 Cross-Cultural Management*
- MGIS-650 Introduction to Data Analytics and Business Intelligence
- MGIS-725 Data Management and Analytics
- MGIS-760 Integrated Business Systems
- MGMT-710 Managing for Environmental Sustainability
- MGMT-720 Entrepreneurship and Technology Entrepreneurship
- MGMT-740 Leading Teams in Organizations
- MGMT-741 Managing Organizational Change*
- MGMT-742 Technology Management*
- MKTG-761 Marketing Concepts and Commercialization
- MKTG-771 Marketing Research Methods*

*While these classes are approved electives, they have not been offered recently.

Select 2 Technical Engineering Elective Courses

- ISEE-601 Systems Modeling and Optimization
- ISEE-626 Contemporary Production Systems
- ISEE-640 Computer-Aided Design and Manufacturing
- ISEE-660 Applied Statistical Quality Control
- ISEE-661 Linear Regression Analysis
- ISEE-682 Lean Six Sigma Fundamentals
- ISEE-684 Engineering and the Developing World
- ISEE-701 Linear Programming
- ISEE-702 Integer and Nonlinear Programming
- ISEE-704 Logistics Management
- ISEE-708 Simulation Analysis
- ISEE-711 Advanced Simulation
- ISEE-720 Production Control
- ISEE-723 Global Facilities Planning
- ISEE-728 Production Systems Management
- ISEE-730 Biomechanics of Human Movement
- ISEE-731 Advanced Topics in Human Factors and Ergonomics
- ISEE-732 Systems Safety Engineering
- ISEE-734 Graduate Engineering Psychology
- ISEE-740 Design for Manufacture and Assembly
- ISEE-741 3D Printing
- ISEE-742 Metal and Composite Additive Manufacturing
- ISEE-743 Personalized 3D Printing
- ISEE-745 Manufacturing Systems
- ISEE-752 Decision Analysis
- ISEE-761 Forecasting Methods
- ISEE-770 Design Project Leadership
- ISEE-772 Engineering of Systems II
- ISEE-785 Fundamentals of Sustainable Engineering
- ISEE-786 Lifecycle Assessment
- ISEE-787 Design for the Environment
- ISEE-789 Special Topics
- ISEE-799 Independent Study
- ISTE-608 Database Design and Implementation

ISE Capstone Project Course

- ISEE-792 Engineering Capstone

5.1 Electives

The ISE Graduate Program Director will consider other graduate courses not on the approved electives list to count as Engineering Management Electives or Technical Engineering Electives. To receive approval for a course substitution, please complete the Plan of Study form found in the appendix and submit to the ISE Graduate Program Director. Approved plans of study must be submitted to the ISE office to be added to the student's file. Students should not assume that a graduate course approved for one student will be approved for all students.

5.2 Capstone Requirement

The Master of Engineering degree in Engineering Management requires the successful completion of the following three-credit capstone course:

ISEE-792 Engineering Capstone

Catalog Description: For the Master of Engineering programs in Industrial and Systems Engineering and Engineering Management. Students must investigate a discipline-related topic in a field related to industrial and systems engineering or engineering management. The general intent of the engineering capstone is to demonstrate the students' knowledge of the integrative aspects of a particular area. The capstone should draw upon skills and knowledge acquired in the program.

6 Cooperative Education (Co-op)

Co-operative education (Co-op) is an optional part of the ISE graduate programs. Co-op is a paid work experience at a company designed to help educate students through the application of academic course material in a work environment. If a graduate student elects to pursue a co-op position, the co-op must be done as an integral part of the plan of study for the graduate degree program.

Communication with your advisor about your intent to co-op is extremely important. You should have a discussion with your advisor to determine how the co-op will be integrated into the degree program to ensure continued progress toward your degree and the effect on your expected graduation date (if any). Students requesting approval to co-op are required to submit a Plan of Study form to their advisor. The Plan of Study form can be found on the ISE website under Student Resources. Approved plans of study must be submitted to the ISE office to be added to the student's file.

The RIT Office of Career Service and Cooperative Education has a process that students must follow to enroll in co-op. This includes attending a Co-op Prep Session before using their services. This Co-op Prep Session is typically held a group session for ISE Department degree programs (date and time will be announced).

For international students, additional co-op rules and guidelines may apply and are available through the International Student Services Office. At the time this document was published the following requirements must be met prior to International Students going on co-op:

- Minimum 18 credits hours complete
- Minimum of 2 academic semesters on campus (Fall and Spring)

For all students wishing to co-op, a co-op will only be approved if the student has a minimum of 3.0 GPA.

7 Appendix A: Plan of Study Form

Master of Engineering in Engineering Management (ENGMGT-ME)
Plan of Study

Name: _____ RIT ID: _____
E-mail:_____

Course	*Semester*	*Grade*	*Credits*
1. ISEE-771 Engineering of Systems I			3
2. ISEE-750 Systems & Project Management			3
3. ACCT-794 Cost Management in Technical Organizations			3
4. ISEE-760 Design of Experiments			3
5.			3
6.			3
7. ISEE-xxx			3
8.			3
9.			3
10. ISEE-792 Engineering Capstone			3
*11.			
*12.			
*13.			
Total			***30***

Advisor: _____ Signature:_____ Date:_____

*** Course not required to fulfill minimum degree requirements** **Ending GPA: _____**

KEY
Engineering elective
Engineering Management elective