Master of Engineering in Engineering Management

Graduate Manual

Industrial and Systems Engineering Department
Kate Gleason College of Engineering
Rochester Institute of Technology

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(Revised July 26, 2016)
Effective fall semester 2161
1. Master of Engineering Degree in Engineering Management

The Master of Engineering in Engineering Management program uses a blend of 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

Admission to the ISE 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, to be sure that your application will receive full consideration for admission to RIT in the fall semester of the next academic year, the following deadlines should be observed:

**Application Timeline for Fall Semester:**
- January 15: All application materials must be received
- March 31: Notification of admission decision

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. Minimum TOEFL scores of 580 (paper-based) or 90 (Internet-based) are required for students that do not have English as their first language. 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 Industrial and Systems Engineering 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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>MATH 181</td>
<td>Project-Based Calculus I</td>
<td>STAT 251</td>
<td>Probability &amp; Statistics I</td>
</tr>
<tr>
<td>MATH 182</td>
<td>Project-Based Calculus II</td>
<td>STAT 252</td>
<td>Probability &amp; Statistics II</td>
</tr>
<tr>
<td>MATH 221</td>
<td>Multivariate Calculus</td>
<td>ISEE 200</td>
<td>Computing for Engineers</td>
</tr>
<tr>
<td>MATH 233</td>
<td>Linear System and Differential Equations</td>
<td>ISEE XXX+</td>
<td>At least 3 upper division ISE courses to be selected as appropriate</td>
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3. Graduate Assistantships

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

4. Graduation Requirements

The ME degree will be awarded upon successful completion of a minimum of 30 units that is equivalent to 10 courses including a 3 unit 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.

4.1 Academic Advisor

A designated member of the ISE faculty will serve as the academic advisor for students enrolled in the Master of Engineering programs. It is the responsibility of the student to meet with the academic advisor on a regular basis to ensure the requirements of the degree are being met. The student should work with the academic advisor to establish a plan of study (described in the next section) for their degree program.
4.2 Plan of Study

The ME Engineering Management Academic Advisor serves as a student's advisor to select courses. **Prior to the completion of the first semester, the students Plan of Study must be mapped out with and approved by the student's advisor using the appropriate plan of study form in the Appendix.** An approved plan of study must be submitted to the ISE department to be placed in the student’s department file.

The ME Engineering Management degree requires that students complete 30 units consisting of 10 three-unit 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 Elective Engineering Management Courses:**

- 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-772 Engineering of Systems II
- ACCT-603 Accounting for Decision Makers
- ACCT-706 Cost Management
- ESCB-705 Economics and Decision Modeling
- MGMT-710 Managing for Environmental Sustainability
- MGMT-720 Entrepreneurship and New Venture Creation
- MGMT-740 Organizational Behavior and Leadership
- MGMT-741 Managing Organizational Change
- MGMT-742 Technology Management
- FINC-721 Financial Analysis for Managers
- MKTG-761 Marketing Concepts and Commercialization
- MKTG-771 Marketing Research Methods
- MGIS-755 Information Technology Strategy and Management
- MGIS-760 Integrated Business Systems
- INTB-730 Cross-Cultural Management
Select 2 Elective Technical Engineering Courses

- ISEE-601 Systems Modeling and Optimization
- ISEE-610 Systems Simulation
- 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-711 Advanced Simulation
- ISEE-720 Production Control
- ISEE-723 Global Facilities Planning
- ISEE-728 Production Systems Management
- ISEE-730 Biomechanics
- ISEE-731 Advanced Topics in Human Factors and Ergonomics
- ISEE-732 Systems Safety Engineering
- ISEE-740 Design for Manufacture and Assembly
- ISEE-741 Rapid Prototyping and Manufacturing
- ISEE-745 Manufacturing Systems
- ISEE-752 Decision Analysis
- 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
4.3 Capstone Requirement for Master of Engineering Degrees

The Master of Engineering degree in Engineering Management requires the successful completion of the following three-unit 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.

5. **Cooperative Education (Co-op)**

Cooperative education (Co-op) has become an integral part of RIT’s undergraduate programs in the KGCOE. However, co-op is not a required part of the graduate programs offered in the ISE Department. To be eligible for co-op, students must complete the following process:

- Meet with the student’s academic advisor to assess how co-op will affect the student’s plan of study.
- If approved, register for Co-op (ISEE-499) in the ISE Office.
- Report the co-op on the Co-op office’s website.
- After completing the co-op assignment and evaluations, meet with the ISE academic advisor to discuss and approve co-op evaluations. Approved and signed evaluations should be returned to the ISE office so a grade may be recorded.

Note that all co-op opportunities may not be appropriate for every student or their plan of study.

For international students, additional co-op rules and guidelines are available through the International Student Services Office. In particular, please be aware that co-op should be done during (not after) a student’s degree program, and that extensions of program forms such as I-20 will not approved for the purposes of co-op.
# Master of Engineering in Engineering Management (ENGMGT-ME)

## Graduate Student Plan of Study

Name: ___________________________________________  RIT ID: ____________________
Address: _________________________________________  Ph(w): ____________________
            _________________________________________  Ph(h): ____________________
            _________________________________________  Email: _______________________

Entry Term: _____________________  7-Year Limit: _____________

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Grade</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>1. ISEE-771 Engineering of Systems I</td>
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<tr>
<td>2. ISEE-750 Systems &amp; Project Management</td>
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<tr>
<td>3. ACCT-794 Cost Management in Technical Organizations</td>
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<tr>
<td>4. ISEE-760 Design of Experiments</td>
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<tr>
<td>5. ISEE/SCB Engineering Management Elective</td>
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<td>6. ISEE/SCB Engineering Management Elective</td>
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<tr>
<td>9. Engineering Elective</td>
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<tr>
<td>10. ISEE-792 Engineering Capstone</td>
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<td><strong>Total</strong></td>
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<td><strong>30</strong></td>
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</table>

Advisor: __________________________  Signature: __________________________  Date:_______

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