



Kate Gleason College of Engineering
Industrial and Systems Engineering Department

Graduate Manual

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(Revised July 2, 2007)

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This packet contains a brief overview of graduate study options offered by the Department of Industrial and Systems Engineering (ISE). Those wishing additional information are encouraged to contact Dr. Michael E. Kuhl, Graduate Program Coordinator, at mekeie@rit.edu or (585) 475-2134, Dr. Jacqueline R. Mozrall, Department Head, or Ms. Marilyn Houck, Senior Staff Assistant, at (585) 475-2598.

1. General Background and Requirements

The IE discipline centers on the design, improvement, and installation of integrated systems of people, material, information, equipment and energy. IE uses the specialized knowledge and skills in the mathematical, physical, computer and social sciences together with the principles and methods of engineering analysis and design to specify, predict, and evaluate the results to be obtained from such systems. The overarching goal of IE is the efficiency and optimization of the enterprise, regardless of whether the activity engaged in is a manufacturing or a service-related industry. Industrial engineers draw on a variety of skills in the academic study areas of applied statistics/quality, ergonomics/human factors, operations research/simulation, manufacturing, and systems engineering.

The ISE Department offers several different degree options to meet the diverse interests of students seeking to continue their engineering education:

- Master of Science in Industrial Engineering (MSIE) – Official RIT Code – EIER
- Master of Engineering in Industrial Engineering (MEIE) – Official RIT Code – EIEG
- Master of Engineering in Systems Engineering (MESE) – Official RIT Code – EIES
- Master of Engineering in Engineering Management (MEEM) – Official RIT Code – EIEM

There are also accelerated dual degree programs, which combine the undergraduate degree (BSIE) with each master degree program listed above (e.g., BS/MSIE, BS/MEIE, BS/MESE, BS/MEEM). These programs have different credit hour/degree requirements that are described in detail in **Sections 3 and 4**. There is also an accelerated dual degree offered jointly with business (BSIE/MBA) that is described in **Section 5**, and an accelerated dual degree offered jointly with the Center for Quality and Applied Statistics (BSIE/MSAS) the is described in **Section 6**.

Part-time students typically take eight credit hours (two courses) per quarter and normally complete the program in six academic quarters spread over two years. Full-time students may finish sooner, depending upon course scheduling and availability. Most courses are offered Monday-Wednesday or Tuesday-Thursday from 4 to 6 PM, 6 to 8 PM, or 8 to 10 PM, with some Master of Science courses offered during the day.

1.1. 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, TOEFL scores (if required), letters of recommendation, and statement of purpose. The GRE is required for all students applying to the MS program. For students applying to one of the dual degree programs, please refer to the corresponding section of this manual for specific admission requirements.

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 quarter of the next academic year, the following deadlines should be observed:

Application Timeline for Fall Quarter:

February 15: All application materials must be received

March 31: Notification of admission decision/graduate assistantship 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. A minimum TOEFL score of 550 paper-based (213 computer-based) is required for students required to take the exam. 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 MS or 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 MS or ME program in ISE.

1016 281	Project-Based Calculus I	1016 331	Matrix Algebra
1016 282	Project-Based Calculus II	0307 361	Probability & Statistics I
1016 283	Project-Based Calculus III	0307 362	Probability & Statistics II
1016 305	Multivariate Calculus	0303 302	Computing for Engineers
1016 306	Differential Equations	0303 XXX+	At least 3 upper division IE courses to be selected as appropriate

Students may not sign up for additional coursework if they have an outstanding "I" (incomplete) grade for an earlier course. Extensions for "I" grades beyond the normal two quarters allowed by Institute guidelines must be approved by the program director. Approval is not automatic. The extension will only be granted once, and only for compelling reasons.

1.2. Graduate Assistantships

Application for Graduate Assistantships can be made by checking the appropriate box on the RIT Graduate School Application indicating interest in an assistantship. Applications received before February 1, will be given priority for assistantships to be awarded for the following academic year. **Only full-time MS students will be considered for assistantships.** Departmental graduate assistantships may be awarded to new students for the current academic year on a competitive basis that depends on the current graduate student population, the number of applicants, and the strength of the graduate student application. Graduate assistantships awarded to new students are only guaranteed for the designated enrollment date. **If a student elects to defer admission,**

the student must reapply for a graduate assistantship. Graduate assistantships for continuing students will be evaluated on a quarterly basis, these assistantships will be awarded on a competitive basis based on progress toward the degree including courses taken, GPA, progress toward thesis, endorsement of advisor, and performance of current assistantship duties. Departmental support for graduate students is limited to two years from the start of enrollment.

1.3. Graduation Requirements

The MS degree will be awarded upon successful completion of a minimum of 45 credit hours that is equivalent to 9 courses and a 9-credit hour thesis. ***All MS students are also required to complete at least 3 quarters of graduate seminar (0303-800).*** The ME degrees will be awarded upon successful completion of a minimum of 48 quarter credit hours that is equivalent to 12 courses and the engineering capstone (0303-779).

In accordance with Institute policy, all graduate programs must be completed within seven years after taking the first graduate course(s) that apply to the program. Exceptions to the seven year rule require a petition to the Institute with an explanation as to why the student was unable to complete the program within seven years. Approval is not automatic.

2. Master of Science (MSIE) Program Requirements and Administration (Official RIT Code – EIER)

The Master of Science Program in Industrial Engineering (MSIE) provides an applied *research* degree in which students focus in one area of IE and complete a thesis in that area. Although students focus in one area, this degree covers all the major areas of Industrial Engineering (IE).

2.1 MS Advisory Committee

The formation of the MS advisory committee is critical to the timely completion of the MS degree. The Graduate Program Coordinator initially serves as a student's advisor. **After no more than 2 quarters or 4 courses are completed, the student must form an advisory committee as follows:**

Step 1. The student should initiate the formation of their committee by selecting a primary thesis advisor from among the ISE Faculty based upon the student's interests and the agreement of the new advisor. In the event that the thesis topic is interdisciplinary, the student may select a second primary advisor from among RIT faculty within or outside of the ISE Department. These two individuals would then serve as co-advisors to the student.

Step 2. The student should then, in conjunction with their advisor, form a thesis committee. The committee should be comprised of at least two ISE faculty members including the advisor. The remainder of the committee may consist of RIT faculty or faculty or industrial personnel from outside RIT. The ISE faculty will approve the committee membership. Once the committee is formed, the student should submit written notification, signed by all committee members, to the ISE department.

Note: In the unlikely event that the need arises for a student to change the composition of their committee, the student should submit written justification signed by all previous committee members to the ISE Department and previous committee members. The student should follow Steps 1 and 2 to re-form their committee.

2.2 Plan of Study

The Graduate Program Coordinator initially serves as a student's advisor to select courses. **After no more than 2 quarters or 4 courses are completed, the students Plan of Study must be mapped out with and approved by the student's MS advisor using the appropriate plan of study form in Appendix A.** An approved plan of study must be submitted to the Graduate Program Coordinator to be placed in the department file.

The MS degree requires that students complete 9 four credit-hour courses, at least 3 quarters of graduate seminar (0303-800), and a nine credit-hour thesis (0303-890). See **Section 7** for thesis requirements.

The coursework must meet the following requirements:

- **A minimum of six courses in Industrial and Systems Engineering**
- **At least one Advanced Statistics course and at least one course from 3 out of the 4 remaining areas listed below.**

Advanced Statistics	Ergonomics / Human Factors	OR / Simulation	Manufacturing	Systems
0303-716 Linear Regression Analysis	0303-731 Adv. Topics in Ergo & Human Factors	0303-701 Linear Programming	0303-766 Manufacturing Systems	0303-729 Advanced Systems Integration
0303-758 Design of Experiments	0303-732 Occupational Biomechanics	0303-702 Integer and Nonlinear Programming	0303-801 Design for Manufacturing	0303-760 Product and Process Design and Development
	0303-734 System Safety Engineering	0303-710 Systems Simulation		0303-765 Databases - Information Systems
		0303-720 Production Control		0303-886 Systems Engineering

** *Note:* Exceptions from this set of courses may be possible, but require department approval.

** *Note:* Not all courses listed here are necessarily approved for all graduate students (see Section 8).

3. Master of Engineering (ME) Program Requirements and Administration

The Master of Engineering Program provides an applied, *practical* degree and allows students to gain breadth across several different areas in IE or focus in one area. The purpose of this degree is to provide students with more in-depth knowledge of industrial and systems engineering concepts and methods that will culminate in a capstone project. This degree is intended for students interested in advancing their industrial career and is usually considered a terminal degree. For students with aspirations of obtaining additional advanced degrees such as a Ph.D. degree, the Master of Science degree should be pursued.

The Industrial & System Engineering Department offers the following Master of Engineering degrees:

- Master of Engineering in Industrial Engineering (MEIE) – Official RIT Code – EIEG
- Master of Engineering in Systems Engineering (MESE) – Official RIT Code – EIES
- Master of Engineering in Engineering Management (MEEM) – Official RIT Code – EIEM

The remainder of this section contains information about selecting an advisor for the ME degree followed by a description and the plan of study requirements for each ME degree program. Please see **Section 3.3** for a description of the engineering capstone requirement that applies to each of the master of engineering degrees.

3.1 ME Advisor

The selection of the ME advisor is critical to the timely completion of the ME degree. The Graduate Program Coordinator initially serves as a student's advisor. **After no more than 2 quarters or 4 courses are completed, the student must establish an advisor for their ME program.** The advisor must be a member of the ISE faculty and should be selected based upon the student's interests and the agreement of the new advisor.

3.2 ME Program Descriptions and Plans of Study

3.2.1 Master of Engineering in Industrial Engineering (MEIE) (Official RIT Code – EIEG)

This program provides an applied, *practical* industrial engineering degree. Industrial Engineering is concerned with the design, improvement and installation of integrated systems of people, material, equipment, and energy and utilizes skills in statistics, human factors, operations research, manufacturing, systems, etc. This degree will allow a student to gain breadth across several different areas or focus on one area within IE.

MEIE Plan of Study

The Graduate Program Coordinator initially serves as a student's advisor to select courses. **After no more than 2 quarters or 4 courses are completed, 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 Appendix A.** An approved plan of study must be submitted to the Graduate Program Coordinator to be placed in the department file.

The MEIE degree requires that students complete 12 four credit-hour courses including the capstone course (0303-779). The coursework must meet the following requirements:

- **A minimum of seven courses in Industrial and Systems Engineering**
- **At least one Advanced Statistics course and at least one course from 3 out of the 4 remaining areas listed below.**

Advanced Statistics	Ergonomics / Human Factors	OR / Simulation	Manufacturing	Systems
0303-716 Linear Regression Analysis	0303-731 Advanced Topics in Ergonomics and Human Factors	0303-701 Linear Programming	0303-766 Manufacturing Systems	0303-729 Advanced Systems Integration
0303-758 Design of Experiments	0303-732 Occupational Biomechanics	0303-702 Integer and Nonlinear Programming	0303-801 Design for Manufacturing	0303-760 Product and Process Design and Development
	0303-734 System Safety Engineering	0303-710 Systems Simulation		0303-765 Databases - Information Systems
		0303-720 Production Control		0303-886 Systems Engineering

** *Note:* Exceptions from this set of courses may be possible, but require department approval.

** *Note:* Not all courses listed here are necessarily approved for *all* graduate students (see Section 8).

With advisor approval, one or two courses from the College of Business can be used to complement the course work in this degree.

3.2.2 *Master of Engineering in Systems Engineering (MESE) (Official RIT Code – EIES)*

The Master of Engineering in Systems Engineering program concentrates on the IE courses that cover the science and technologies of decision making in a complex world. The optimization of the system rather than the subsystem is the overall objective of a systems engineer. Systems Engineering is concerned with improving the decision making process by utilizing statistics, simulation, optimization and computer science skills to enhance the design, control, operation and understanding of systems. This is a discipline that has shown rapid growth in both its development and recognition as a distinct field of engineering. Systems Engineering skills are becoming increasingly important within the local, industrial community as an aid to management seeking to respond to increasing competitive pressures.

MESE Plan of Study

The Graduate Program Coordinator initially serves as a student's advisor to select courses. **After no more than 2 quarters or 4 courses are completed, 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 Appendix A.** An approved plan of study must be submitted to the Graduate Program Coordinator to be placed in the department file.

The MESE degree requires that students complete 12 four credit-hour courses including the engineering capstone course (0303-779). The coursework must meet the following requirements:

	Course Number	Course Name
1	0303-701	Linear Programming
2	0303-710	Systems Simulation
3	0303-716	Applied Statistics II (Linear Regression Analysis)
4	0303-729	Advanced Systems Integration
5	0303-750 or 0303-757	Management of Quality Control Systems or Reliability Engineering
6	0303-758	Design of Experiments
7	0303-760	Product and Process Design and Development
8	0303-765	Database Information Systems
9	0303-784	Systems and Project Management
10	XXXX-XXX	Elective I
11	XXXX-XXX	Elective II
12	0303-779	Engineering Capstone

Elective Courses	
0303-702	Integer and Nonlinear Programming
0303-703	Supply Chain Management
0303-723	Facilities Planning
0303-726	Contemporary Production Systems
0303-734	Systems Safety Engineering
0303-762	Manufacturing Systems Modeling and Performance Analysis
0303-764	Operations Management and Manufacturing Systems
0303-766	Manufacturing Systems
0303-775	Data Structures using C
0303-785	Engineering Risk/Benefit Analysis
0303-786	Engineering of Systems I
0303-787	Systems Optimization
0303-788	Engineering of Systems II
0303-790	Fundamentals of Sustainable Design
0303-791	Life Cycle Assessment and Costing

3.2.3 Master of Engineering in Engineering Management (MEEM) (Official RIT Code – EIEM)

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 up to four courses from the College of Business to complement the engineering course work.

MEEM Plan of Study

The Graduate Program Coordinator initially serves as a student’s advisor to select courses. **After no more than 2 quarters or 4 courses are completed, 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 Appendix A.** An approved plan of study must be submitted to the Graduate Program Coordinator to be placed in the department file.

The MEEM degree requires that students complete 12 four credit-hour courses including the capstone course (0303-779). The coursework must meet the following requirements:

- **A minimum of seven courses in Industrial and Systems Engineering**
- **Up to 4 courses from the College of Business**
- **At least one Advanced Statistics course and at least one course from 3 out of the 4 remaining areas listed below.**

Advanced Statistics	Ergonomics / Human Factors	OR / Simulation	Manufacturing	Systems
0303-716 Linear Regression Analysis	0303-731 Advanced Topics in Ergonomics and Human Factors	0303-701 Linear Programming	0303-766 Manufacturing Systems	0303-729 Advanced Systems Integration
0303-758 Design of Experiments	0303-732 Occupational Biomechanics	0303-702 Integer and Nonlinear Programming	0303-801 Design for Manufacturing	0303-760 Product and Process Design and Development
	0303-734 System Safety Engineering	0303-710 Systems Simulation		0303-765 Databases - Information Systems
		0303-720 Production Control		

** **Note:** Exceptions from this set of courses may be possible, but require department approval.

** **Note:** Not all courses listed here are necessarily approved for *all* graduate students (see Section 8).

3.3 Capstone Requirement for Master of Engineering Degrees

The Master of Engineering Degrees in Industrial Engineering, Systems Engineering, and Engineering Management requires the successful completion of the following four credit-hour capstone course:

0303-779 Engineering Capstone

Catalog Description: For the Master of Engineering programs in Industrial Engineering, Engineering Management, and Systems Engineering. Students must investigate a discipline-related topic in a field related to industrial engineering, engineering management, or systems engineering. 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.

4. BS/MS and BS/ME IE Program Requirements and Administration

These combined degree offerings are only available for students who are currently matriculated in the undergraduate ISE program. Over and above the fact that students are able to complete their Bachelor and Master degrees in an accelerated manner, these dual programs offer a unique opportunity for outstanding undergraduate students to pursue. The combination of these programs provides a synergy that allows students to apply their learning between programs. For example, these programs will allow students to work through the thesis or capstone project process, that includes experiences that undergraduate students are not typically well-versed in, while completing undergraduate coursework (e.g., problem definition of ill-defined problems). Students can then apply these experiences towards some of their higher-level undergraduate courses (e.g., engineering design, project design), that require some of the same skills, and obtain a better understanding and appreciation for these undergraduate courses.

At least eighteen quarters of full-time study would be required in the combined degree program, including at least 14 quarters of academic study, plus the co-op requirement. In the combined program, students typically begin their co-op requirement in the summer of their 2nd year, as opposed to their 3rd year, and they only complete four co-op blocks, as opposed to five blocks. However, during the four co-op blocks they would still need to complete a minimum of 48 weeks of co-op experience.

During the first two years, the BS curriculum is followed. The quarter-by-quarter sequence of required courses for the various graduate programs (i.e., BS/MS or BS/ME) are shown below. Although the program can be completed in 5 years, students typically take one or 2 additional quarters to complete the program requirements (e.g., thesis).

Time Limits for Completion of BS/MS and BS/ME Degree Requirements

Students admitted to the BS/MS or BS/ME dual degree programs are required to complete all requirements for both degrees by the end of the spring quarter of Year 6.

If it is anticipated that the dual degree requirements will not be met by the end of the spring quarter of Year 6, the student has the following options:

- The student can be certified with the BS degree.
- The student can be certified with the BS degree and apply for formal admission to the MS or ME programs. (Acceptance is not guaranteed and if accepted additional coursework will be required.)
- The student can apply for a one-quarter extension (Summer of Year 6) in which the student should submit to the Graduate Program Coordinator the following items ***prior by the end of the winter quarter in Year 6:***
 1. Student letter requesting extension of the BS/MS or BS/ME degree completion that states the reasons for not completing degree for certification in the spring of Year 6.
 2. Student's signed thesis proposal;
 3. Student's progress report on the thesis work completed including a current draft of their thesis;
 4. Timetable for completion of the thesis deliverables

The Graduate Program Coordinator and the ISE Department Head will meet with the student's advisor and/or committee and will decide whether an extension will be granted. There will be no consideration for extensions beyond summer of Year 6 except for circumstances that are **CLEARLY** beyond the

student's control, such as a medical emergency or hospitalization, and when it is clear that a **BRIEF** (not to exceed one quarter) extension will allow the student to complete both degrees.

4.1 BS/MSIE Admission / Curriculum / Graduation Requirements (Official RIT Code – EIEB)

Students should formally apply to this combined program during their 3rd year, although students should attempt to co-op in the summer after their 2nd year if they have an interest in the program. Decisions with regard to admission to the BS/MS program will be based on the following: a minimum 3.4/4.0 cumulative GPA, 3 letters of recommendation from faculty, and an interview with the ISE Department Head. There will be no exceptions for late admittance after the fall quarter of the 4th year. A 3.0/4.0 cumulative GPA must be maintained throughout the program.

4.1.1 MS Advisory Committee

The formation of the MS advisory committee is critical to the timely completion of the MS degree. Once admitted to the program, the ISE Department Head will serve as the initial advisor for the BS/MS degree. **No later than end of the Winter quarter of the 4th year, the student must form an advisory committee as follows.** (Note that 1 thesis credit hour can be taken during the Winter quarter to allow a student dedicated time to identify a thesis topic and arrange the advisory committee.)

Step 1. The student should initiate the formation of their committee by selecting a primary thesis advisor from among the ISE Faculty based upon the student's interests and the agreement of the new advisor. In the event that the thesis topic is interdisciplinary, the student may select a second primary advisor from among RIT faculty within or outside of the ISE Department. These two individuals would then serve as co-advisors to the student.

Step 2. The student should then, in conjunction with their advisor, form a thesis committee. Generally, the committee should be comprised of at least three individuals including the advisor. At least two ISE faculty members should serve on the thesis committee. The remainder of the committee may consist of RIT faculty or faculty or industrial personnel from outside RIT. The ISE faculty will approve the committee membership. Once the committee is formed, the student should submit written notification, signed by all committee members, to the ISE department.

Note: In the unlikely event that the need arises for a student to change the composition of their committee, the student should submit written justification signed by all previous committee members to the ISE Department and previous committee members. The student should follow Steps 1 and 2 to re-form their committee.

4.1.2 BS/MSIE Plan of Study

Prior to taking any courses that the student plans to count toward the MS degree and no later than the end of the Winter quarter of the 4th year, the student's Plan of Study must be mapped out with and approved by the student's MS advisory committee using the appropriate plan of study form in Appendix A. An approved plan of study must be submitted to the Graduate Program Coordinator to be placed in the department file.

The BS/MS program counts 16 credit hours towards both the BS and MS programs (i.e., ‘double-count’) and requires 225 credit hours. Thus, for the BS/MS degree the student must:

- Perform at least 4 co-op blocks totaling a minimum of 48 weeks
- Complete all required coursework for BS degree
- Complete the following coursework for MS degree:
 - ✓ 4 approved Professional Electives (PEs - done as part of BS degree, credit counted towards both degrees, courses must be 700-level or above)
 - ✓ 5 graduate courses
- A minimum of six courses in Industrial and Systems Engineering
- Complete 3 quarters of graduate seminar (0303-800)
- Complete 9-credit hour thesis (0303-890). See **Section 7** about Thesis requirements.

Sample plan of study for BS/MS program (PE = professional elective, LA = liberal arts)

Year	Fall	Winter	Spring	Summer	Hours
1	Same coursework required for BS degree (Same)			Off	51
2	Same coursework required for BS degree (Same)			Co-op	49
3	Same	Same	Co-op	Co-op	32
4	0303-503 0303-510 PE 1 LA Concentration 1 (16 cr.)	0303-630 PE 2 PE 3 Free Elective Thesis (1 cr.) (17 cr.)	0303-516 0303-511 0303-402 LA Concentration 2 (16 cr.)	Co-op	49
5	PE 4 Grad 1 Grad 2 Grad 3 0303-800 (16 cr.)	0303-560 Grad 4 Grad 5 Thesis (4 cr.) 0303-800 (16 cr.)	0303-561 Free Elective Thesis (4 cr.) 0303-800 (12 cr.)	Graduate	44
Total					225

BS and MS degrees in industrial engineering will be awarded upon successful completion of the approved undergraduate program consisting of 196 credit hours and graduate program consisting of a minimum of 45 quarter credit hours including a 9-credit hour thesis. As indicated above, 16 credit hours are counted towards both the BS and MS programs (i.e., ‘double-counted’).

Due to the breadth of the BSIE program at RIT, the course breadth requirements for the traditional MSIE degree do not apply to the BS/ME IE degree.

4.2. BS/ME Admission / Curriculum / Graduation Requirements

Students should apply to this combined program during their 3rd year. Decisions with regard to admission to the BS/MS program will be based on the following: a minimum 3.0/4.0 cumulative GPA and an interview with the ISE Department Head. There will be no exceptions for late admittance after the fall quarter of the 4th year. A 3.0/4.0 cumulative GPA must be maintained throughout the program. **There is a strict 6-year limit for the full completion of the BS/ME program which begins the first quarter that the student is enrolled at RIT.**

4.2.1 BS/ME Advisor

The student’s undergraduate advisor for the BS degree will serve as the advisor for the dual BS/ME degree. Any changes to the advisor must be requested through the ISE Department.

4.2.2 BS/ME Program Descriptions and Plans of Study

Prior to taking any courses that the student plans to count toward the ME degree and no later than the end of the Winter quarter of the 4th year, the student's Plan of Study must be mapped out with and approved by the student's advisor using the appropriate plan of study form in Appendix A. An approved plan of study must be submitted to the Graduate Program Coordinator to be placed in the department file.

4.2.2.1 BS/ME in Industrial Engineering (IE) Plan of Study (Official RIT Code – EIEA)

The BS/ME program counts 16 credit hours towards both the BS and ME programs (i.e., 'double-count') and requires 228 credit hours. Thus, for the BS/ME IE degree the student must:

- Perform at least 4 co-op blocks totaling a minimum of 48 weeks
- Complete all required coursework for BS degree
- Complete the following coursework for ME degree:
 - ✓ 4 approved Professional Electives (PEs - done as part of BS degree, credit counted towards both degrees, courses must be 700-level or above)
 - ✓ 7 graduate courses
- Complete capstone and final four credit hours of degree by either:
 - ✓ Serve as a project leader for a multidisciplinary senior design team for two quarters with a grade requirement of B or better in both Multidisciplinary Senior Design I and II, and
 - Register for 0303-778 Leadership Capstone (0 credit),
 - Take one additional graduate level course (700-level or above); **or**
 - ✓ Successfully complete the four credit-hour capstone course (0303-779)
- At least 7 courses out of the total of 12 courses must be ISE courses (0303)

Sample plan of study for BS/ME in IE program (PE = professional elective, LA = liberal arts).

Year	Fall	Winter	Spring	Summer	Hours
1	Same coursework required for BS degree			Off	51
2	Same coursework required for BS degree			Co-op	49
3	Same	Same	Co-op	Co-op	32
4	0303-503 0303-510 PE 1 0303-402 (16 cr.)	0303-630 PE 2 PE 3 Free Elective (16 cr.)	0303-516 0303-511 0303-526 LA Concentration 3 (16 cr.)	Co-op	48
5	PE4 Grad 1 Grad 2 Grad 3 (16 cr.)	0303-560 Grad 4 Grad 5 [Grad 8 or 0303-779 Capstone] (16 cr.)	0303-561 Free Elective Grad 6 Grad 7 (16 cr.)	Graduate	48
Totals					228

BS and ME degrees in industrial engineering will be awarded upon successful completion of the approved undergraduate program consisting of 196 credit hours and graduate program consisting of a minimum of 48 quarter credit hours including an engineering capstone. As indicated above, 16 credit hours would be counted towards both the BS and ME programs (i.e., 'double-counted').

Due to the breadth of the BSIE program at RIT, the course breadth requirements for the traditional MEIE degree do not apply to the BS/ME IE degree.

4.2.2.2 BSIE/ME in Engineering Management (EM) Plan of Study (Official RIT Code – EIEC)

The BSIE/ME in Engineering Management uses a blend of IE 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. Each student develops a program of study, in conjunction with their advisor, that contains up to four courses from the College of Business to complement the engineering course work. A sample plan of study for the BSIE/ME in Engineering Management is shown below.

The BSIE/ME in Engineering Management counts 16 credit hours towards both the BS and ME programs (i.e., ‘double-count’) and requires 228 credit hours. For the BSIE/MEEM degree, the student must:

- Perform at least 4 co-op blocks totaling 48 weeks (students typically start co-op in the summer after their 2nd year)
- Complete all existing coursework for BS degree
- Complete the following coursework for ME degree:
 - ✓ 4 approved Professional Electives (PEs - done as part of BS degree, credit counted towards both degrees, courses must be 700-level or above)
 - ✓ 7 graduate courses
- Complete capstone and final four credit hours of degree by either:
 - ✓ Serve as a project leader for a multidisciplinary senior design team for two quarters with a grade requirement of B or better in both Multidisciplinary Senior Design I and II, and
 - Register for 0303-778 Leadership Capstone (0 credit),
 - Take one additional graduate level course (700-level or above); **or**
 - ✓ Successfully complete the four credit-hour capstone course (0303-779)
- At least 7 courses out of the total of 12 courses must be ISE courses (0303)
- Up to 4 of the total of 12 courses can be from the College of Business.

Sample plan of study for BSIE/MEEM program (PE = professional elective, LA = liberal arts).

Year	Fall	Winter	Spring	Summer	Hours
1	Same coursework required for BS degree			Off	51
2	Same coursework required for BS degree			Co-op	49
3	Same	Same	Co-op	Co-op	32
4	0303-503 0303-510 PE 1 0303-402 (16 cr.)	0303-630 PE 2 PE 3 Free Elective (16 cr.)	0303-516 0303-511 0303-526 LA Concentration 3 (16 cr.)	Co-op	48
5	PE4 Grad 1 Grad 2 Grad 3 (16 cr.)	0303-560 Grad 4 Grad 5 [Grad 8 or 0303-779 Capstone] (16 cr.)	0303-561 Free Elective Grad 6 Grad 7 (16 cr.)	Graduate	48
Totals					228

The BSIE/MEEM dual degree would be awarded upon successful completion of the approved undergraduate program consisting of 196 credit hours and the approved graduate program consisting of a minimum of 48 quarter credit hours including a 4-credit hour capstone. As indicated above, 16 credit hours would be counted towards both the BS and ME programs (i.e., ‘double-counted’).

4.2.2.3 BSIE/ME in Systems Engineering (SE) Plan of Study (Official RIT Code – EIED)

As defined by the International Council on Systems Engineering (INCOSE), “Systems Engineering is an interdisciplinary approach and means to enable the realization of successful systems. It focuses on defining customer needs and required functionality early in the development cycle, documenting requirements, and then proceeding with design synthesis and system validation while considering the complete problem: Operations, Performance, Test, Manufacturing, Cost & Schedule, Training & Support, and Disposal. Systems Engineering integrates all the disciplines and specialty groups into a team effort forming a structured development process that proceeds from concept to production to operation. Systems Engineering considers both the business and the technical needs of all customers with the goal of providing a quality product that meets the user needs.”

The BSIE/ME in Systems Engineering counts 16 credit hours towards both the BS and ME programs (i.e., ‘double-count’) and require 228 credit hours. For the BSIE/MESE degree, the student must:

- Perform at least 4 co-op blocks totaling 48 weeks (students typically start co-op in the summer after their 2nd year)
- Complete all existing coursework for BS degree, substituting some graduate-level coursework for associated undergraduate coursework (i.e., 0303-701, 0303-710, 0303-716, 0303-729).
- 4 approved Professional Electives (PEs - done as part of BS degree, courses must be 700-level or above)
- Complete the following coursework for ME degree:
 - ✓ 5 additional required systems engineering courses (i.e., 0303-760, 765, 758, 784, and either 750 or 757)
 - ✓ 2 approved systems engineering-related electives
- Complete capstone and final four credit hours of degree by either:
 - ✓ Serve as a project leader for a multidisciplinary senior design team for two quarters with a grade requirement of B or better in both Multidisciplinary Senior Design I and II, and
 - Register for 0303-778 Leadership Capstone (0 credit),
 - Take one additional graduate level course (700-level or above); **or**
 - ✓ Successfully complete the four credit-hour capstone course (0303-779)

Sample plan of study for BSIE/ME in Systems Engineering dual degree program (* graduate level course in place of undergraduate offering). (LA = liberal arts)

Year	Fall	Winter	Spring	Summer	Hours
1	Same coursework required for BS degree			Off	51
2	Same coursework required for BS degree			Co-op	49
3	0303-520 0303-525 LA Concentration 2 Free Elective	0303-481 0303-415 0307-362 LA Concentration 3	Co-op	Co-op	32
4	0303-510 0303-701* 0303-760 PE 1 (16 cr.)	0303-422 0303-710* 0303-758 0303-784 (16 cr.)	0303-516 0303-526 0303-716* PE 1 (16 cr.)	Co-op	48
5	0303-765 PE 2 PE 3 Grad Elective 1 (16 cr.)	0303-560 0303-729* [0303-779 Capstone or Grad Elective 3] PE 4 (16 cr.)	0303-561 0303-750 Grad Elective 2 Free Elective (16 cr.)	Graduate	48
Totals					228

* Counted toward both BS and ME degree programs.

System Engineering Graduate Elective Courses
0303-702 Integer and Nonlinear Programming
0303-704 Logistics Management
0303-723 Facilities Planning
0303-726 Contemporary Production Systems
0303-734 Systems Safety Engineering
0303-762 Manufacturing Systems Modeling and Performance Analysis
0303-764 Operations Management and Manufacturing Systems
0303-766 Manufacturing Systems
0303-775 Data Structures using C
0303-785 Engineering Risk/Benefit Analysis
0303-786 Engineering of Systems I
0303-787 Systems Optimization
0303-788 Engineering of Systems II
0303-790 Fundamentals of Sustainable Design
0303-791 Life Cycle Assessment and Costing

The BSIE/MESE dual degree would be awarded upon successful completion of the approved undergraduate program consisting of 196 credit hours and the approved graduate program consisting of a minimum of 48 quarter credit hours including a 4-credit hour capstone. As indicated above, 16 credit hours would be counted towards both the BS and ME programs (i.e., ‘double-counted’).

5. BSIE/MBA Program Requirements

This combined degree offering is only available for students who are currently matriculated in the undergraduate ISE program.

These are the general requirements for this program, for specific requirements with regard to admission to the program, program administration, and graduation requirements, students should contact the Director of the MBA program in the College of Business at RIT.

This program allows student to complete a BS in IE and a MBA in an accelerated manner. There is an agreement between ISE and COB that certain undergraduate courses can fulfill the requirements of some MBA foundation courses as shown below (there is typically a 2:1 ratio between undergraduate courses and MBA courses). To take full advantage of the accelerated nature of the program, students typically define Economics as their liberal arts concentration and use their free elective to take a business course that fulfills a requirement (e.g., Financial Accounting, upper level management, marketing, or finance course).

Undergraduate Courses	COB – MBA Foundation Courses
0101-301: Financial Accounting <i>and</i> 0101-494: Cost Acct. in Technical Organizations	0101-703: Accounting Concepts
0303-481: Engineering Management <i>and</i> Upper level management course	0102-740: Organization Behavior & Leadership
0303-510: Applied Statistical Quality Control <i>and</i> 0303-511: Applied Linear Regression	0106-782: Statistical Analysis for Decision Making
0511-301: Principles of Economics I <i>and</i> 0511-401: Principles of Economics II	0103-705: Economics for Managers
0105-363: Principle of Marketing <i>and</i> Upper level marketing course	0105-761: Marketing Concepts
0303-401: Operations Research <i>and</i> 0303-402: Production Control	0106-743: Operations Management
0303-620: Engineering Economy <i>and</i> Upper level finance course	0104-721: Financial Analysis for Managers

- A maximum of 6 MBA foundation courses may be waived for a period of up to 5 years from the time the undergraduate course was completed.
- A grade of ‘B’ or better must be earned in an undergraduate course to be used to waive a MBA foundation course.
- Student must submit an application for admission to the MBA program. Minimum GMAT and GPA scores as specified by the American Assembly of Collegiate Schools of Business (AACSB) are required.
- A waiver for the Statistical Analysis for Decision Making graduate course is contingent upon the student passing the statistics portion of the graduate math diagnostic test that is administered during graduate orientation.
- Advising of students in this program will be undertaken by faculty members of the ISE Department and COB.

6. BS/MS in Industrial & Systems Engineering and Applied Statistics (Official RIT Code – EIEQ)

These are the general requirements for this program, for specific requirements with regard to admission to the program, program administration, and graduation requirements, students should contact the Head of Center for Quality and Applied Statistics at RIT.

The BS/MS program counts 16 credit hours towards both the BS and MS programs (i.e., “double-count”) and requires 226 credit hours (Table 1). For this BS/MS degree the student must:

- Co-op in the summer after their 2nd year
- Perform at least 4 co-op blocks totaling 48 weeks
- Complete all existing coursework for the BS degree (196 credits)
- Complete the following coursework for the MS degree:
 - ✓ 10 CQAS graduate courses, each at 3 credits
 - ✓ 2 other approved PE’s from a list of CQAS graduate courses, each at 4 credits

Table 1. Sample plan of study for BS/MS program (PE = professional elective, LA = liberal arts).

Year	Fall	Winter	Spring	Summer	Hours
1	Same coursework required for BS degree (Same)			Off	51
2	Same coursework required for BS degree (Same)			Co-op	49
3	Same	Same	Co-op	Co-op	32
4	0303-503 0303-510 * PE 1* 0303-402 (16 cr.)	0303-630 PE 2* PE 3 Free Elective (16 cr.)	0303-516 0303-511* 0303-526 LA Concentration 3 (16 cr.)	Co-op	48
5	PE 4 Free Elective 0307-801 0307-821 0307-742 (17 cr.)	0303-560 0307-802 0307-822 0307-Elective ** 0307-Elective ** (16 cr.)	0303-561 0307-842 0307- Elective ** 0307- Elective ** (13 cr.)	Graduate	46
Totals					226

- * 0303-510, 0303-511, and two PE’s, can be counted toward both degrees. Two of the four PE’s should be CQAS courses, each taken for four credits. All other CQAS courses should be taken for three credits. These PE’s should be planned by the beginning of winter quarter in Year 4 for scheduling purposes. CQAS (0307) courses from the following list are acceptable as 4-credit courses: 772, 801 (see note ****), 802 (see note ****), 803, 830, 831, 842, 851, 856, 862, 873, 875, 883, 886. A number of these courses may require 801/802 (or, equivalently, 0303-758) or 841 (or, equivalently, 0303-511). If a student chooses to take 801, 802 or 842 from this list, then CQAS electives should be substituted for the 801, 802 or 842 courses listed in Year 5. Students should sign up for these two courses for 4 credits. If the course is only offered for 3 credits, the student should also sign up for a 1-credit independent study (0307-890).
- ** Electives should be selected with the help of a CQAS advisor. 0307-721 (SPC) may not be taken because of the large overlap with 0303-510.
- *** 0307-801 and 0307-802 may be waived if student has had 0303–758, but the student must then take two CQAS electives, including 0307–803.

A BS degree in Industrial & Systems Engineering and an MS degree in Applied Statistics will be awarded upon successful completion of the approved undergraduate program consisting of 196 credit hours and a graduate program consisting of a minimum of 45 quarter credit hours. Of these, 16 credit hours would be counted towards both the BS and MS programs (i.e., ‘double-counted’): Four credit hours for each of 0303-510, 0303-511, and two CQAS-based PE’s.

7. Thesis Requirements for MS Program

7.1 Thesis Proposal

The student should submit a written thesis proposal to the thesis committee at least 2 weeks prior to thesis proposal defense. This proposal should include the following:

- Title
- Committee Members
- Abstract
- Formal problem statement / definition
- Relevant literature review
- Scope of work
- Proposed timeline
- Hardware requirements
- Software requirements
- Space requirements
- Bibliography

The student will defend their thesis proposal to their thesis committee. Once a thesis proposal has been successfully defended and accepted by the committee, requests to change the scope of work will generally not be granted.

The student should submit a written thesis proposal, approved and signed by all committee members, to the ISE Department at least 6 months prior to their expected graduation date.

7.2 Thesis

After approval from their thesis advisor, the student should submit a complete copy of their thesis to the committee at least 3 weeks prior to the thesis defense.

The student should prepare a paper in a format suitable for publication in a refereed journal prior to thesis defense.

The student should schedule, announce and publicize the thesis defense 2 weeks prior to the defense date.

The student should orally defend their thesis before their thesis committee. Generally, thesis defenses will be open to the Institute.

The student's thesis committee will judge the thesis using the following options: accept thesis, accept thesis with revisions, accept thesis with revisions and re-defend, or reject thesis. Dependent upon the outcome and if the need arises, the thesis advisor will facilitate the revision process and act to develop a consensus amongst the committee. If the committee rejects the thesis, the student should explore non-thesis degree options (e.g., Master of Engineering Degree).

Once the thesis has been successfully defended, the student should submit written notification to the ISE Department.

The student should submit bound and appropriately formatted copies of their thesis to: Library (2), ISE Department, and each committee member. A copy of the receipt from the library binding department should be given to the ISE department as proof of completion and eligibility of certification.

8. Approved Graduate Courses

The list of courses below represents courses that will earn credit as valid graduate courses (Note: ** Indicates that courses are *NOT* appropriate for students who possess an undergraduate degree in Industrial Engineering). **The ISE Department requires that you complete a plan of study approved by your academic advisor even if the courses you plan to select appear on the approved list.** To assist in planning, the term that the course is typically offered is noted in parentheses (courses offered every year, unless noted otherwise. Even years, e.g., 00 / 01, etc., odd years, e.g., 01 / 02, etc.). All courses designated as MM&L or MPD courses must receive the approval of the course instructor. This will ensure that all teaming and similar course requirements are fulfilled and implemented in a consistent manner.

The ISE faculty will continue to entertain other courses on a case-by-case basis and courses will only be accepted if the student has discussed the choice with his/her advisor and received permission from the advisor in writing. Students should not assume that a professional elective deemed appropriate for one will be appropriate for all.

ISE Department (0303)

620	Engineering Economy**
625	Concepts in Manufacturing**
701	Linear Programming **
702	Integer and Nonlinear Programming
710	Systems Simulation **
711	Advanced Simulation Techniques
716	Applied Linear Regression Analysis **
720	Production Control** (MML – Permission of instructor)
726	Contemporary Production Systems
727	Advanced Manufacturing Engineering
729	Advanced Systems Integration**
730	Ergonomics and Human Factors ** (On demand)
731	Advanced Topics in Ergonomics & Human Factors
732	Work Physics and Biomechanics
733	Cognitive Engineering and HCI (On demand)
734	Systems Safety Engineering
740	Numerical Control and Manufacturing (On demand)
741	Applications of Robotics in Manufacturing Systems (On demand)
742	Artificial Intelligence (On demand)
750	Management of Quality Control Systems ** (MML –Permission of instructor)
755	Multi-Criteria Decision Making (On demand)
756	Decision Analysis (On demand)
757	Reliability
758	Design of Experiments
760	Product Process Development and Design** (MML – Permission of instructor)
765	Database Management Systems
766	Manufacturing Systems (MML – Approval of instructor)
775	Data Structures in C (On demand)
784	Systems & Project Management
785	Engineering Risk Benefit Analysis (MPD – Permission of instructor)
786	Engineering of Systems I (MPD – Permission of instructor)
788	Engineering of Systems II (MPD – Permission of instructor)
789	Systems Dynamics (On demand)
790	Introduction to Sustainable Design
801	Design for Manufacture
886	Systems Engineering

Mechanical Engineering Department (0304)

- 615 Robotics (Permission of instructor – circuits knowledge preferred)
- 864 Production Tool Design

Microelectronic Engineering Department (0305)

- 701 Microelectronics I (Lab: 0305-741)
- 702 Microelectronics II (Lab: 0305-742) (Prereq.: 0305-701)
- 703 Microelectronics III (Lab: 0305-742) (Prereq.: 0305-701)
- 731 Microelectronics Mfg. I (Prereq.: 0305-701)
- 732 Microelectronics Mfg. II (Prereq.: 0305-731)

Center for Quality and Applied Statistics (0307)

- 770 Design of Experiments for Engineering and Science
- 772 Applied Survey Design/Analysis
- 801 Design of Experiments I
- 831 Multivariate Analysis Applications
- 851 Nonparametric Statistics (Winter)
- 862 Reliability Statistics I
- 873 Time Series Analysis and Forecasting

CAST - Information Technology (0602)

- 703 Algorithms and Data Structures

CAST - Computer Science (0605)

- 750 Introduction to Artificial Intelligence
- 751 Knowledge Based Systems
- 759 Topics in Artificial Intelligence (On demand)

COB - Accounting (0101)

- 706 Cost Accounting
- 794 Cost Accounting for Manufacturing Environment (MML – Permission of instructor)

COB – Management (0102)

- 740 Organizational Behavior and Leadership**
- 741 Leading Change in a Quality Organization**
- 742 Technology Management

COB – Marketing (0105)

- 761 Marketing Concepts
- 762 Advanced Marketing Management
- 766 International Marketing
- 771 Customer Satisfaction Research Methods

COB – Management Information Systems (0112)

- 735 Network Technology
- 755 Information Systems Management

Appendix

Master of Science in Industrial Engineering (MSIE)
 Graduate Student Plan of Study

(Official RIT Code – EIER)

Name: _____

SS#: _____

Address: _____

Ph(w): _____

Ph(h): _____

Email: _____

Employer: _____

Entry Term: _____

7-Year Limit: _____

<i>Course</i>	<i>Quarter</i>	<i>Grade</i>	<i>Hrs.</i>
1. 0303-			
2. 0303-			
3. 0303-			
4. 0303-			
5. 0303-			
6. 0303-			
7.			
8.			
9.			
*10.			
*11.			
Thesis			9
0303-800: Graduate Seminar			0
0303-800: Graduate Seminar			0
0303-800: Graduate Seminar			0
Total			45

Thesis

Title: _____

Proposal Submission Date: _____

Advisor: _____

Signature: _____

Date: _____

Committee Member: _____

Committee Member: _____

Defense Date: _____

Completion Date: _____

* Course not required to fulfill degree requirements

Ending GPA: _____

Master of Engineering in Industrial Engineering (MEIE)
 Graduate Student Plan of Study

(Official RIT Code – EIEG)

Name: _____

SS#: _____

Address: _____

Ph(w): _____

Ph(h): _____

Email: _____

Employer: _____

Entry Term: _____

7-Year Limit: _____

<i>Course</i>	<i>Quarter</i>	<i>Grade</i>	<i>Hrs.</i>
1. 0303-			
2. 0303-			
3. 0303-			
4. 0303-			
5. 0303-			
6. 0303-			
7.			
8.			
9.			
10.			
11.			
12. 0303-779 Engineering Capstone			4
*13.			
*14.			
Total			48

Advisor: _____

Signature: _____

Date: _____

Completion Date: _____

* Course not required to fulfill degree requirements

Ending GPA: _____

Master of Engineering in Systems Engineering (MESE)
 Graduate Student Plan of Study

(Official RIT Code – EIES)

Name: _____

SS#: _____

Address: _____

Ph(w): _____

Ph(h): _____

Email: _____

Employer: _____

Entry Term: _____

7-Year Limit: _____

<i>Course</i>	<i>Quarter</i>	<i>Grade</i>	<i>Hrs.</i>
1. 0303-701: Linear Programming			
2. 0303-710: Systems Simulation			
3. 0303-716: Applied Linear Regression			
4. 0303-729: Advanced Systems Integration			
5. 0303-750: Mgt. QC Systems or 757- Reliability			
6. 0303-758: Design of Experiments			
7. 0303-760: Product & Process Design & Development			
8. 0303-765: Database Management Systems			
9. 0303-784: Systems and Project Management			
10. Elective I			
11. Elective II			
12. 0303-779 Engineering Capstone			4
*13.			
*14.			
Total			48

Advisor: _____

Signature: _____

Date: _____

Completion Date: _____

* Course not required to fulfill degree requirements

Ending GPA: _____

Master of Engineering in Engineering Management (MEEM) (Official RIT Code – EIEM)
 Graduate Student Plan of Study

Name: _____ SS#: _____
 Address: _____ Ph(w): _____
 _____ Ph(h): _____
 _____ Email: _____
 Employer: _____
 Entry Term: _____ 7-Year Limit: _____

*** Maximum of 4 Courses from the College of Business ***

<i>Course</i>	<i>Quarter</i>	<i>Grade</i>	<i>Hrs.</i>
1. 0303-			
2. 0303-			
3. 0303-			
4. 0303-			
5. 0303-			
6. 0303-			
7.			
8.			
9.			
10.			
11.			
12. 0303-779 Engineering Capstone			4
*13.			
*14.			
Total			48

Advisor: _____ Signature: _____ Date: _____

Completion Date: _____

* Course not required to fulfill degree requirements

Ending GPA: _____

Bachelor of Science/
 Master of Science in Industrial Engineering (BS/MSIE)
 Graduate Student Plan of Study

(Official RIT Code – EIEB)

Name: _____
 Address: _____

 Employer: _____
 Entry Term: _____

SS#: _____
 Ph(w): _____
 Ph(h): _____
 Email: _____
 6-Year Limit: _____

<i>Course</i>	<i>PE**</i>	<i>Quarter</i>	<i>Grade</i>	<i>Hrs.</i>
1. 0303-				
2. 0303-				
3. 0303-				
4. 0303-				
5. 0303-				
6. 0303-				
7.				
8.				
9.				
*10.				
*11.				
Thesis				9
0303-800: Graduate Seminar				0
0303-800: Graduate Seminar				0
0303-800: Graduate Seminar				0
Total				45

Thesis

Title: _____
 Proposal Submission Date: _____
 Advisor: _____ Signature: _____ Date: _____
 Committee Member: _____
 Committee Member: _____
 Defense Date: _____
 Completion Date: _____

* Course not required to fulfill degree requirements

Ending GPA: _____

** Indicate with an "X" if this course also counts as a PE for the BSIE degree (Up to 4 courses).

Bachelor of Science/
 Master of Engineering in Industrial Engineering (BS/MEIE)
 Graduate Student Plan of Study

(Official RIT Code – EIEA)

Name: _____
 Address: _____

 Employer: _____
 Entry Term: _____

SS#: _____
 Ph(w): _____
 Ph(h): _____
 Email: _____
 6-Year Limit: _____

<i>Course</i>	<i>PE**</i>	<i>Quarter</i>	<i>Grade</i>	<i>Hrs.</i>
1. 0303-				
2. 0303-				
3. 0303-				
4. 0303-				
5. 0303-				
6. 0303-				
7. 0303-				
8.				
9.				
10.				
11.				
12.				
*13.				
*14.				
Total				48

Advisor: _____ Signature: _____ Date: _____

Completion Date: _____

* Course not required to fulfill degree requirements

Ending GPA: _____

** Indicate with an "X" if this course also counts as a PE for the BSIE degree (Up to 4 courses).

Bachelor of Science in Industrial Engineering/
 Master of Engineering in Engineering Management
 Graduate Student Plan of Study

(Official RIT Code – EIEC)

Name: _____
 Address: _____

 Employer: _____
 Entry Term: _____

SS#: _____
 Ph(w): _____
 Ph(h): _____
 Email: _____
 6-Year Limit: _____

<i>Course</i>	<i>PE**</i>	<i>Quarter</i>	<i>Grade</i>	<i>Hrs.</i>
1. 0303-				
2. 0303-				
3. 0303-				
4. 0303-				
5. 0303-				
6. 0303-				
7. 0303-				
8.				
9.				
10.				
11.				
12.				
*13.				
*14.				
Total				48

Advisor: _____ Signature: _____ Date: _____

Completion Date: _____

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

** Indicate with an "X" if this course also counts as a PE for the BSIE degree (Up to 4 courses).

Note: Up to 4 courses can be taken from the College of Business (must be 700-level or above)

Bachelor of Science in Industrial Engineering/
 Master of Engineering in Systems Engineering
 Graduate Student Plan of Study

(Official RIT Code – EIED)

Name: _____
 Address: _____

SS#: _____
 Ph(w): _____
 Ph(h): _____
 Email: _____

Employer: _____
 Entry Term: _____

7-Year Limit: _____

<i>Course</i>	<i>Quarter</i>	<i>Grade</i>	<i>Hrs.</i>
1. 0303-701: Linear Programming			
2. 0303-710: Systems Simulation			
3. 0303-716: Applied Linear Regression			
4. 0303-729: Advanced Systems Integration			
5. 0303-750: Mgt. QC Systems or 757- Reliability			
6. 0303-758: Design of Experiments			
7. 0303-760: Product & Process Design & Development			
8. 0303-765: Database Management Systems			
9. 0303-784: Systems and Project Management			
10. Elective I			
11. Elective II			
12.			
*13.			
*14.			
Total			48

Advisor: _____ Signature: _____ Date: _____

Completion Date: _____

* Course not required to fulfill degree requirements

Ending GPA: _____

MSIE Program Checklist
Industrial & Systems Engineering Department, RIT

Name _____

Enrollment Date _____

Task	Target Date	Date Completed
1. Establish an advisor for your graduate committee	Prior to registering for second quarter	
2. Establish a thesis topic	End of second quarter	
3. Form a graduate committee	End of second quarter	
4. Submit plan of study signed by all committee members	End of second quarter	
5. Write thesis proposal	End of third quarter (submit to committee at least one week prior to proposal presentation)	
6. Thesis proposal presentation	End of third quarter	
7. Submit approved thesis proposal to Graduate Program Coordinator	End of third quarter	
8. Write thesis document	End of sixth quarter (submit to committee at least two weeks prior to presentation)	
9. Announce thesis presentation (give abstract, committee, room and time information to Graduate Program Coordinator)	At least two weeks prior to presentation date	
10. Thesis presentation	End of sixth quarter	
11. Fill out "Permission to Copy" form (submit to library with thesis)	End of sixth quarter	
12. Make revisions to thesis (if required)	End of sixth quarter	
13. Copy thesis (minimum of 4 for RIT Library, ISE Department, Thesis Advisor, yourself)	End of sixth quarter	
14. Committee must sign thesis approval page	End of sixth quarter	
15. Bind thesis (RIT Library) and get receipt	End of sixth quarter	
16. Submit binding receipt and the exact thesis title to Graduate Program Coordinator	End of sixth quarter	
17. Submit bound thesis to Graduate Program Coordinator and Advisor	Within one month of submitting receipt	

ME Programs Checklist
Industrial & Systems Engineering Department, RIT

Name _____

Enrollment Date _____

Task	Target Date	Date Completed
1. Establish an advisor	Prior to registering for second quarter	
2. Submit plan of study signed by advisor	End of second quarter	
3. Complete Engineering Capstone Course	End of sixth quarter	