

**M.S. Programs Handbook**  
 Industrial & Manufacturing Engineering Department  
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**Overview:**

This handbook describes the following three Master of Science Programs offered by the Department of Industrial and Manufacturing Engineering at Wayne State University:‡

- ▶ Master of Science in Industrial Engineering
- ▶ Master of Science in Manufacturing Engineering
- ▶ Master of Science in Engineering Management

This handbook will provide you with information to help in deciding among several programmatic options, and will assist you in assuring that all administrative requirements are met. We encourage you to contact the primary contacts identified below for any additional information. We have also included a list of all department faculty along with their research interests, mailing addresses, and electronic contact information at the end of this handbook. The faculty and staff are here to aid you in your studies and the development of your professional career.

**Primary Contacts:**

**Chairperson:**

Dr. Kenneth Chelst  
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**Academic Advisor:** For information regarding admission and general program requirements

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‡ A document describing our Ph.D. program is available from our department website at: <http://www.ime.wayne.edu>

# Master of Science in Industrial Engineering (MSIE)

## Focus: Extended Enterprise Integration

### Program Description:

The master of science degree program in Industrial Engineering is built on a core designed to provide breadth of experience in systems modeling, analysis, and applications common in industrial engineering and operations analysis. Building upon this common foundation, the student constructs a specialization in one of the following three areas: Quality Management, Lean Operations Management, and Manufacturing Systems.

### Program Objectives:

Graduates will be able to

- Integrate, model, continuously improve, control, and if necessary redesign, enterprise activities
- Perform data analysis and optimization for enterprise decision making
- Develop business cases for justifying process, organizational and technological projects
- Support enterprise performance, quality, efficiency and productivity enhancement activities
- Facilitate systems engineering and project management
- Communicate effectively (written, verbal and presentation) across all levels in the enterprise
- Develop an ability to grow through life long acquisition of knowledge

### Admission Requirements:

Admission to this program is contingent upon admission to the [Graduate School](#). These are the additional requirements:

- Baccalaureate degree in engineering from an institution accredited by the [Accreditation Board for Engineering and Technology](#) (ABET).
- Honor point average of 2.8 in the upper division of their undergraduate program.
- [GRE Exam](#) for international students.
- The Quality Management Specialization has an additional requirement of 3-years of full-time work experience.

In addition, students who have an undergraduate degree in mathematics, physics, computer science, or other discipline with a strong analytical base may be considered for admission. Applicants whose undergraduate education is deficient in prerequisites for graduate classes may be required to take background courses that will NOT count toward the thirty-two-credit degree requirement.

### Degree Requirements:

The MSIE program is offered under the following two options: "Plan-A: Thirty-two credits including an eight credit thesis" and "Plan-C: Thirty-two credits of course work". Both options require a common core of eight credits as described below. While the core provides breadth to the student's program, depth of understanding is acquired through completion of the required twenty four credits in one of the specialization areas.

### Thesis Option:

If a thesis option (Plan-A) is selected, 8 credits of research IE8999 may be selected which integrates with the student's plan of work to create depth of understanding in an area relevant to the program objective. In such cases, the requirement for the twenty-four-credit specialization is waived, and the individually-designed program must be approved by both the thesis research advisor and a Graduate Program Officer.

### Core courses: (8 Credits)

#### IE 6560: Deterministic Optimization

(4 Credits)

- Linear Optimization Methods
- Nonlinear Optimization Methods
- Integer and Dynamic Programming
- Queuing, Transportation, and Network Models
- Decision Theory

#### IE 6210: Applied Engineering Statistics

(4 Credits) **Prerequisite: IME Probability & Statistics Placement Test\***

- Review of Hypothesis Testing
- Introduction to ANOVA and DOE
- Regression Analysis (Multiple and Multivariate)
- Time-series Analysis
- Non-parametric Statistics
- Minitab Software

#### **\*IME Probability and Statistics Placement Test**

This test will be administered prior to the first week of every semester (and during the first week of Fall/Winter semesters). Students that fail this placement test will need to register for BE2100 (3 Credits). BE2100 will not count toward the 32 program credits. More information about this test is available at the following website:

<http://www.ime.wayne.edu/masters/msexams.php>

<p><b>Specialization (32 Credits):</b>  <b>Quality Management</b>  Coordinator: Dr. Gary Wasserman  Co-Coordinators: Dr. Kai Yang &amp; Dr. Nanua Singh</p>	<p><b>Specialization (32 Credits):</b>  <b>Lean Operations Management</b>  Coordinator: Dr. Ratna Babu Chinnam  Co-Coordinators: Dr. Nanua Singh &amp; Dr. Leslie Monplaisir</p>	<p><b>Specialization (32 Credits):</b>  <b>Manufacturing Systems</b>  Coordinator: Dr. Olugbenga Mejabi  Co-Coordinator: Dr. Ratna Babu Chinnam</p>
<p><b>Objectives:</b> Develop abilities to:</p> <ul style="list-style-type: none"> <li>• Manage quality standard and benchmarking/ improvement activities</li> <li>• Coordinate quality assurance activities with other activities (engineering, financial, management)</li> <li>• Control and monitor quality during production</li> <li>• Improve quality during design and prototyping</li> <li>• Implement a six-sigma quality improvement program</li> </ul>	<p><b>Objectives:</b> Develop abilities to:</p> <ul style="list-style-type: none"> <li>• Plan, operate, and control production &amp; service systems</li> <li>• Turn existing facilities into lean systems</li> <li>• Design lean and flexible production &amp; service systems</li> <li>• Design, model, and manage supply chains to enhance extended enterprise integration</li> <li>• Awareness for maintenance engineering and management</li> <li>• Implement strategies such as Lean Manufacturing (mistake proofing, etc.) and Six Sigma to existing manufacturing facilities</li> </ul>	<p><b>Objectives:</b> Develop abilities to:</p> <ul style="list-style-type: none"> <li>• Perform Process Performance Management and Process Problem Solving activities and teams (throughput, efficiency, quality, cost)</li> <li>• Implement strategies such as Lean Manufacturing (mistake proofing, etc.) and Six Sigma to existing manufacturing facilities</li> <li>• Perform Manufacturing System Design &amp; Integration (Equipment selection and justification)</li> <li>• Conduct Process Monitoring to improve process performance (gauging, source inspection)</li> <li>• Develop and implement maintenance plans and policies</li> </ul>
<p><b>Prospective Jobs:</b></p> <ul style="list-style-type: none"> <li>• Quality Manager</li> <li>• Quality Department Supervisor</li> <li>• QS/ISO Auditor</li> <li>• Six Sigma Consultant</li> <li>• Quality Standards Trainer/Consultant</li> <li>• Continuous Improvement Coordinator</li> </ul>	<p><b>Prospective Jobs:</b></p> <ul style="list-style-type: none"> <li>• Process Improvement Specialist</li> <li>• First Line Plant Supervisor</li> <li>• Production Control Supervisor</li> <li>• Materials and Procurement Manager</li> <li>• Supply Chain Manager/ Logistics System Manager</li> <li>• Facilities Manager</li> <li>• Operations Manager</li> <li>• Plant Manager</li> <li>• Lean Manufacturing Consultant</li> </ul>	<p><b>Prospective Jobs:</b></p> <ul style="list-style-type: none"> <li>• Manufacturing Systems Engineer</li> <li>• Facilities Engineer</li> <li>• Continuous Improvement Coordinator</li> <li>• Plant Manager</li> <li>• Lean Manufacturing Consultant</li> </ul>
<p><b>Core Courses: (8 Credits)</b>  IE 6560: Deterministic Optimization  IE 6210: Applied Engineering Statistics</p> <p><b>Regular Coursework: (18 Credits)</b>  BA 6000: Financial Reporting: Accounting Module (2 Cr.)  BA 6005: Basics: Financial Management (2 Cr.)  IE 6240: Quality Management Systems (4 Cr.)  IE 6260: Quality Assurance and Control (2 Cr.)  IE 6310: Lean Operations/Manufacturing (2 Cr.)  IE 6840: Project Management (2 Cr.) or IE 7830: Technology and Change Management (2 Cr.)  IE 7610: Fundamentals of 6 Sigma (4 Cr.)</p> <p><b>Elective Coursework: (6 Credits)</b>  All elective courses should be relevant to the program and approved by the <u>Coordinator</u>  IE 6850: Manufacturing Strategies (2 Cr.)  IE 7250: Quality Engineering (4 Cr.)  IE 7270: Reliability Estimation (4 Cr.)  IE 8200: Advanced Quality Engineering (4 Cr.)</p>	<p><b>Prerequisite Courses (Do NOT Count Toward 32 Program Credits):</b>  IE 4260: Principles of Quality Control (3 Cr.)<sup>1</sup> or equivalent.</p> <p><b>Core Courses: (8 Credits)</b>  IE 6560: Deterministic Optimization  IE 6210: Applied Engineering Statistics</p> <p><b>Regular Coursework: (18 Credits)</b>  IE 6310: Lean Operations/Manufacturing (2 Cr., Coreq: IE6430)  IE 6430: Computer Simulation Methods (2 Cr., Coreq: IE6310)  IE 6840: Project Management (2 Cr.) or IE 7830: Technology and Change Management (2 Cr.)  IE 7315: Production Systems (4 Cr.)  IE 7325: Supply Chain Management (4 Cr., Prereq: IE 7315)  IE 7610: Fundamentals of 6-Sigma (4 Cr.) or IE 6240: Quality Management Systems (4 Cr.)</p> <p><b>Elective Coursework: (6 Credits)</b>  All elective courses should be relevant to the program and approved by the <u>Coordinator</u>  Recommended Courses:  BA 6000: Financial Reporting: Accounting Module (2 Cr.)  IE 6442: Facilities Design (2 Cr.)  IE6510: Information Systems for the Mfg. Enterprise (2 Cr.)  IE 6850: Manufacturing Strategies (2 Cr.)  IE7420: Flexible Manufacturing Systems (4 Cr.)  IE 7720: Engineering Risk and Decision Analysis (4 Cr.)  IE 7995: Value Engineering [Special Topics] (4 Cr.)</p>	<p><b>Prerequisite Courses (Do NOT Count Toward 32 Program Credits):</b>  ME 5580: Computer-Aided Mechanical Design (4 Cr.)<sup>2</sup> or equivalent.</p> <p><b>Core Courses: (8 Credits)</b>  IE 6560: Deterministic Optimization  IE 6210: Applied Engineering Statistics</p> <p><b>Regular Coursework: (20 Credits)</b>  IE 6310: Lean Operations/Manufacturing (2 Cr., Coreq: IE6430)  IE 6420: Computer Aided Manufacturing (4 Cr., Prereq: ME 5580)  IE 6430: Computer Simulation Methods (2 Cr., Coreq: IE6310)  IE 6442: Facilities Design (2-4 Cr.)<sup>3</sup>  IE 7315: Production Systems (4 Cr.)  IE 7420: Flexible Manufacturing Systems (4 Cr.)</p> <p><b>Elective Coursework: (6 Credits)</b>  All elective courses should be relevant to the program and approved by the <u>Coordinator</u>  Recommended Courses:  IE 6240: Quality Management Systems (4 Cr.)  IE 6510: Information Systems for the Manufacturing Enterprise (2 Cr.)  IE 6840: Project Management (2 Cr.)  IE 6850: Manufacturing Strategies (2 Cr.)  IE 7325: Supply Chain Management (4 Cr., Prereq. IE 7315)  IE 7610: Fundamentals of 6 Sigma (4 Cr.)  IE 7720: Engineering Risk and Decision Analysis (4 Cr.)  IE 7830: Technology and Change Management (2 Cr.)  IE 7995: Value Engineering [Special Topics] (4 Cr.)</p>

<sup>1</sup> Students that do not satisfy this specialization prerequisite will be required to take IE 6260: Quality Assurance and Control (2 Cr.) towards elective credits.

<sup>2</sup> Students that do not satisfy this specialization prerequisite will be required to take ME 5580: Computer-Aided Mechanical Design (4 Cr.) towards elective credits.

<sup>3</sup> Take all four credits of IE 6442 (2-4 Cr.)

## Master of Science in Manufacturing Engineering (MSMfgE) Focus: Production Life-Cycle Integration

### Program Description:

The master of science degree program in manufacturing engineering is built on a core designed to provide a firm foundation in the various elements of manufacturing and systems engineering. Building on this preparation, the student constructs a specialization in one of the following three areas: Computer Integrated Manufacturing, Integrated Product Engineering, and Quality Engineering.

### Program Objectives:

Graduates will be able to

- Understand and integrate the Design, Test & Build product life cycle
- Model, analyze and control design and production activities
- Understand the impact of Quality, Cost and Timeliness metrics on manufacturing performance
- Demonstrate a basic understanding of manufacturing processes and technologies
- Perform data analysis and optimization for decision making
- Develop business cases for justifying process, organizational and technological projects
- Support for systems engineering and project management
- Communicate effectively (written, verbal and presentation) across all levels in the enterprise
- Develop an ability to grow through life long acquisition of knowledge

### Admission Requirements:

Admission to this program is contingent upon admission to the [Graduate School](#). These are the additional requirements:

- Baccalaureate degree in engineering from an institution accredited by the [Accreditation Board for Engineering and Technology](#) (ABET).
- Honor point average of 2.8 in the upper division of their undergraduate program.
- [GRE Exam](#) for international students.

Applicants whose undergraduate education is deficient in prerequisites for graduate classes may be required to take background courses that will NOT count toward the thirty-two-credit degree requirement.

### Degree Requirements:

The MSME program is offered under the following two options: Plan-A: Thirty-two credits including an eight credit thesis and Plan-C: Thirty-two credits of course work.

### Thesis Option:

If a thesis option (Plan A) is selected, 8 credits of research IE8999 may be selected which integrates with the student's plan of work to create depth of understanding in an area relevant to the program objective. In such cases, an individually-designed program must be approved by both the thesis research advisor and a coordinator.

<p><b>Specialization (32 Credits):</b>  <b>Computer Integrated Manufacturing</b>  Coordinator: Dr. Kyoung-Yun Kim  Co-Coordinators: Dr. Leslie Monplaisir &amp; Dr. Nanua Singh</p>	<p><b>Specialization (32 Credits):</b>  <b>Integrated Product Engineering</b>  Coordinator: Dr. Leslie Monplaisir  Co-Coordinator: Dr. Nanua Singh and Dr. Kyoung-Yun Kim</p>	<p><b>Specialization (32 Credits):</b>  <b>Quality Engineering</b>  Coordinator: Dr. Kai Yang  Co-Coordinators: Dr. Gary Wasserman &amp; Dr. Nanua Singh</p>
<p><b>Objectives:</b> Develop abilities to:  <i>Prerequisite: Thorough understanding for different manufacturing processes</i></p> <ul style="list-style-type: none"> <li>Use computers to simulate for design, test and build automated systems</li> <li>Select automated manufacturing and material handling systems to support flexible and cost efficient manufacturing facilities</li> <li>Integrate CAD, CAE and CAM technologies</li> <li>Design real-time control systems for shop floor and CIM systems</li> </ul>	<p><b>Objectives:</b> Develop abilities to:</p> <ul style="list-style-type: none"> <li>Manage cost in the product development cycle</li> <li>Manage lead time and projects for the product life cycle</li> <li>Define marketing and "Voice of the Customer" requirements for product and process definition</li> <li>Understand and coordinate the process of product conceptualization and realization</li> <li>Understand application of a range of computer-aided engineering (CAE) analysis tools</li> <li>Facilitate interdisciplinary work to support product realization</li> <li>Facilitate data transformation through the product life cycle (CAD to CAM)</li> </ul>	<p><b>Objectives:</b> Develop abilities to:</p> <ul style="list-style-type: none"> <li>Control and monitor quality during production</li> <li>Improve quality during production and manufacturing process start up</li> <li>Incorporate quality into products during design and prototyping</li> <li>Perform reliability assessment/estimation for production equipment</li> <li>Perform reliability design/benchmarking/improvement during product design/prototyping</li> <li>Coordinate quality/reliability improvement with other professionals</li> <li>Learn/introduce new methodologies for process quality improvement</li> <li>Implement six-sigma quality improvements</li> </ul>
<p><b>Prospective Jobs:</b></p> <ul style="list-style-type: none"> <li>Automation Engineer</li> <li>Systems Integration Engineer</li> <li>CIM Specialist</li> </ul>	<p><b>Prospective Jobs:</b></p> <ul style="list-style-type: none"> <li>Product development program manager</li> <li>PD-Project Manager</li> <li>Product Development Engineer</li> <li>Design Engineer</li> <li>Design and Development Engineer</li> <li>Release Engineer</li> <li>Test Engineer</li> <li>Computer Aided Engineering Analysis Engineer</li> <li>Robust Design Engineer</li> </ul>	<p><b>Prospective Jobs:</b></p> <ul style="list-style-type: none"> <li>Quality Engineer</li> <li>Reliability Engineer</li> <li>Manufacturing Engineer with Quality Focus</li> <li>Product Engineer with Quality/Reliability Focus</li> <li>Quality Supervisor</li> <li>Six Sigma Consultant</li> </ul>
<p><b>Prerequisite Courses (Do NOT Count Toward 32 Program Credits):</b>  <b>IME Probability &amp; Statistics Placement Test<sup>4</sup></b>  IE 3450: Mfg Processes I or equivalent.  ME 5580: Computer-Aided Mechanical Design (4 Cr.)<sup>7</sup> or equivalent.</p> <p><b>Regular Coursework: (26 Credits)</b>  IE 6000: Digital Automation (4 Cr.)  IE 6260: Quality Assurance and Control (2 Cr.)  IE 6310: Lean Operations/Manufacturing (2 Cr.)  IE 6420: Computer Aided Manufacturing (4 Cr., Prereq: ME 5580)  IE 6430: Computer Simulation Methods (2 Cr., Coreq. IE6310)  IE 6442: Facilities Design (2-4 Cr.)<sup>5</sup>  IE 6510: Information Systems for the Manufacturing Enterprise (2 Cr.)  IE 7315: Production Systems (4 Cr.)  IE 7420: Flexible Manufacturing Systems (4 Cr.)</p> <p><b>Elective Coursework: (6 Credits)</b>  All elective courses should be relevant to the program and approved by the <u>Coordinator</u>  Recommended Courses:  IE 6442: Facilities Design (2-4 Cr.)<sup>6</sup>  IE 6560: Deterministic Optimization (4 Cr.)  IE 6850: Manufacturing Strategies (2 Cr.)  IE 7515: Factory Information Systems (2 Cr., Prereq. IE 6000 or Equivalent)</p>	<p><b>Prerequisite Courses (Do NOT Count Toward 32 Program Credits):</b>  <b>IME Probability &amp; Statistics Placement Test<sup>4</sup></b>  ME 4500: Mechanical Engineering Design II (4 Cr.) or equivalent.  ME 5580: Computer-Aided Mechanical Design (4 Cr.)<sup>7</sup> or equivalent.</p> <p><b>Regular Coursework: (26 Credits)</b>  ME 5040: Finite Element Methods (4 Cr.)  BA 6015: Financial Reporting: Marketing Module(2 Cr.)  IE 6405: Integrated Product Development (4 Cr.)  IE 6420: Computer Aided Manufacturing (2 Cr.)  IE 6421: Computer Aided Manufacturing Lab (2 Cr., Prereq: ME 5580)  IE 7210: Robust Design (4 Cr.)  IE 7315: Production Systems (4 Cr.)  IE 7400:Capstone: Integrated Product Engineering<sup>8</sup> (4 Cr., Prereq. IE 6405, ME 5040, IE 6420, IE 6421, IE7210)</p> <p><b>Elective Coursework: (6 Credits)</b>  All elective courses should be relevant to the program and approved by the <u>Coordinator</u>  Recommended Courses:  IE 6260: Quality Assurance and Control (2 Cr.)  IE 6510: Information Systems for the Manufacturing Enterprise (2 Cr.)  IE 7270: Reliability Estimation (4 Cr.)  IE 7720: Engineering Risk and Decision Analysis (4 Cr.)  IE 7880: Computer Supported Collaborative Engineering (2 Cr.)</p>	<p><b>Prerequisite Courses (Do NOT Count Toward 32 Program Credits):</b>  <b>IME Probability &amp; Statistics Placement Test<sup>4</sup></b>  IE 4260: Principles of Quality Control (3 Cr.)<sup>9</sup> or equivalent.</p> <p><b>Regular Coursework: (26 Credits)</b>  IE 6210: Applied Engineering Statistics (4 Credits; Prereq: BE 2100 or equivalent)  IE 6240: Quality Management Systems (4 Cr.)  IE 6270: Design of Experiments (4 Cr.)  IE 6310: Lean Operations/Manufacturing (2 Cr.)  IE 7250: Quality Engineering (4 Cr.)  IE 7270: Reliability Estimation (4 Cr.)  IE 7610: Fundamentals of 6 Sigma (4 Cr.)</p> <p><b>Elective Coursework: (6 Credits)</b>  All elective courses should be relevant to the program and approved by the <u>Coordinator</u>  Recommended Courses:  IE 6850: Manufacturing Strategies (2 Cr.)  IE 7315: Production Systems (4 Cr.)  IE 7325: Supply Chain Management (4 Cr.)  IE 7995: Value Engineering [Special Topics] (4 Cr.)  IE 8200: Advanced Quality Engineering (4 Cr.)</p>

<sup>4</sup> See page three for more information or <http://www.ime.wayne.edu/masters/msexams.php>

<sup>5</sup> Take first two credits of IE 6442 (2-4 Cr.)

<sup>6</sup> Take all four credits of IE 6442 (2-4 Cr.)

<sup>7</sup> Students that do not satisfy this specialization prerequisite will be required to take ME 5580: Computer-Aided Mechanical Design (4 Cr.) towards elective credits

<sup>8</sup> Requires advisor's approval (must sign up in previous semester).

<sup>9</sup> Students that do not satisfy this specialization prerequisite will be required to take IE 6260: Quality Assurance and Control (2 Cr.)

## Master of Science in Engineering Management (MSEM)

### Program Description:

The master of science degree program in engineering management is designed to build both technical competence and business acumen. The program builds understanding and skills critical to the support of fast-to-market strategies, which also guarantee product quality, and cost minimization. A systematic analytical framework is developed and coupled with tools for managing the engineering and technical functions within manufacturing-based companies. This cross-disciplinary program draws from the expertise of the College of Engineering and School of Business Administration, and develops the engineering leader who is responsible for designing and implementing strategies to successfully compete in the twenty-first century.

### Admission Requirements:

Admission to this program is contingent upon admission to the [Graduate School](#). These are the additional requirements:

- Baccalaureate degree in engineering from an institution accredited by the [Accreditation Board for Engineering and Technology](#) (ABET).
- At least 3 years of full-time work experience as a practicing engineer or technical leader.
- Honor point average of 3.0 in the upper division of their undergraduate program.
- Applicants from non-ABET institutions must submit [GRE](#) scores.
- All applicants to this program will be interviewed.

Applicants whose undergraduate education is deficient in prerequisites for graduate classes may be required to take background courses that will **NOT** count toward the thirty-two-credit degree requirement. Applicants with less than 3.0 honor point average might be considered for admission under special circumstances.

### Degree Requirements:

The MSEM program is offered under Plan B: forty-two credits that includes twenty four credits of engineering core courses, ten credits of business core courses, a six-credit Capstone Project, and two credits of elective courses.

### Capstone Project:

The Capstone Project is team based and provides a vehicle for integrating lessons learned from across the curriculum. The project has important goals of team building and developing leadership skills and focuses on the application of tools and methods acquired in the program to address a significant, real-world industrial challenge. In each of the final two semesters of the program, students register for three credit hours of Capstone Project. They will meet periodically with faculty to present progress reports.

### Proposed Class Schedule:

	Course	Credits
Year 1	BE 2100: Probability & Statistics or equivalent or test out by examination	NC
	BA 6020: Contemporary Principles: Management	2
	BA 6025: Basics: Production/Operations Management	2
	IE 6240: Quality Management Systems <u>or</u> IE 7210: Robust Design <u>or</u>	4
	IE 7610: Fundamentals of 6-Sigma	
	BA 6015: Financial Reporting: Marketing Module	2
	IE 6310: Lean Operations/Manufacturing	2
Year 2	IE 7720: Engineering Risk and Decision Analysis	4
	IE 6510: Information Systems	2
	IE 6560: Deterministic Optimization	4
	IE 7830: Management of Technology Change	2
	BA 6000: Financial Reporting: Accounting Module	2
	BA 6005: Basics: Financial Management	2
Year 3	IE 6840: Project Management	4
	IE 7999: Leadership Project	2
	IE 7999: Leadership Project	4
	Elective(s)	4

Partial list of possible two-credit electives:

- IE 7830: Technology and Change Management
- IE 6850: Manufacturing Strategies
- IE 6442: Facilities Design
- IE 6430: Computer Simulation Methods

All elective courses should be relevant to the program and approved by the [Coordinator](#)

## General Administrative Policy

### Admissions:

You must apply for admission to the Graduate School at Wayne State University. Applications may be obtained by calling the Department of Industrial and Manufacturing Engineering at +(313) 577-3821, or the office of Graduate Admissions at +(313) 577-3577, or by visiting the Wayne State University website on the internet at <http://www.wayne.edu>. Instructions for filing the application are included with the application. In order to assure sufficient time for processing your application, the following dates are recommended for complete submission of your application.

Semester	Apply Before	Classes Begin
Fall	May 1st	Early September
Winter	August 1st	Early January
Spring/Summer	January 1st	Early May

If your application is submitted too late for acceptance during the desired semester, you may apply to the department of Industrial and Manufacturing Engineering for a "Permit to Register". Your application must be filed to be eligible for such a permit. The permit is only granted once, and hence, students must gain admission to the graduate program by the next registration period. A permit to register is generally not available to international students because of VISA restrictions.

### Academic Standing:

The Master of Science student is required to earn at least a 3.0 (or B) average to satisfy degree requirements. Any student receiving a grade of C+ or lower will be placed on probation. Two grades of C+ or lower will result in dismissal from the program. In addition, the student must meet the following criteria:

1. Students are permitted to repeat a maximum of one course to improve their grade point average. Permission to repeat a course must be approved before the course is taken. Applications to repeat a course can be obtained from the Department of Industrial & Manufacturing Engineering. Forms must be returned to the office for processing by the departmental "Student Advisor". Repeating a course will result in the old grade being replaced by the new grade earned.
2. Students must achieve a minimum of a B grade in the courses in the core program. The core courses are detailed in the description of each of the Master of Science programs.

### Requirements Established in Admission Process:

Attention must be paid to any restrictions established in the admission process. Such restrictions often deal with the requirements to take courses above the thirty-two-credit minimum in the case of MSIE and MSME programs and above forty-two-credit minimum in the case of the MSEM program to make up for background deficiencies. Occasionally, there is reason to change these stipulations made in the admission process. The only way to change any requirements established in the admission process is through a "Memo of Change" initiated by the appropriate program coordinator (identified along with the program description). If such a change memo has not been processed, the student will be required to satisfy all requirements established in the admission process. This may impact the ability of the student to graduate on time.

### Plan of Work:

The Plan of Work is intended to assist the student in structuring the course work for the MS degree. Students are urged to discuss their program with the appropriate program coordinator (identified along with the program description). The plan of work should be filed by all students in the program before completing 12 credits. Students will be notified by the graduate program office regarding the acceptance of the plan. The plan of work is a contract that describes all requirements to be met for the degree. The plan of work should be treated as a living document. If there are any changes to your program, you must file a new Plan of Work and receive approval. Failure to keep your plan of work updated can delay graduation.

### Application for Graduation:

It is your responsibility to file an "Application for Graduation" with the University Records Office. They are located at: 1 West Helen Newberry Joy Administrative Services Building. Their telephone number is +(313) 577-3531. This application must be filed by the first day of class of the student's final semester.

### Curricular Practical Training (CPT):

The Industrial & Manufacturing Engineering Department strongly believes in the valuable, complementary experience that Curricular Practical Training can provide to international students. Students are encouraged to gain CPT by taking up industrial internships through "IE 6991: Industrial Internship" credits.

All CPT experiences must be directly aligned with your degree program. They need prior approval from the department Graduate Program Officer, or, in his absence, the Chair of the department. This is consistent with Immigration and Naturalization Service (INS) and WSU's Office of International Students and Scholars (OISS) guidelines.

#### Eligibility and Process:

- Student should have completed 16 credits of plan of work related coursework to be eligible for Curricular Practical Training.
- With only 16 credits completed, student is allowed to take CPT either in the Fall term or the Winter term, but not both. Student is however allowed to extend the CPT to include the Spring/Summer term as well.
- With 24 or more credits completed, students are eligible for one full year CPT.
- No more than 2 credits of the CPT related credits (IE 6991 with Satisfactory or Unsatisfactory grade) can be used toward the 32 credit plan-of-work. If credits are to be used toward graduation, there are stringent requirements for report writing. See "Departmental Procedures and Requirements" section below for more details.
- In case of conflict, Wayne State University policy will always override this departmental policy.

#### Words of Caution:

- Students should always consult with the OISS before taking any CPT credits.
- In gaining CPT, students are responsible for strictly following guidelines set by OISS and INS.

#### Wayne State University Forms:

All necessary university forms are available at the OISS located at 42 W. Warren, 416 Welcome Center, Detroit, MI 48202 (Tel: 313-577-3422, Fax: 313-577-2962, E-mail: [oissmail@wayne.edu](mailto:oissmail@wayne.edu), <http://www.oiss.wayne.edu>).

#### Departmental Procedures and Requirements for CPT:

ANY STUDENT CONSIDERING AN INTERNSHIP MUST COMPLETE THE INTERNSHIP PROPOSAL FORM (IPF), IDENTIFYING AN ADVISOR, AND DESCRIBING A CONCISE PLAN (PREPARED WITH THE HELP OF THE ADVISOR) FOR CARRYING OUT THE INTERNSHIP STUDY. The proposal should clearly demonstrate the relevance of the internship to the degree program. CPT forms will not be signed by the GPO or Department Chair without the completed IPF. It is the responsibility of the student to make sure that an approved copy of the IPF is included in his/her official folder with the Graduate Student Advisor (i.e., Ms. Gail Evans). TO BE ELIGIBLE FOR SIGNATURES, STUDENT MUST MAKE AVAILABLE JOB DESCRIPTION (INCLUDING SPECIFIC DUTIES) ON CORPORATE STATIONERY OR COME IN AN E-MAIL DIRECTLY FROM THE CORPORATION TO EITHER THE GPO OR DEPARTMENT CHAIR. The offer letter should have not only a starting date but also an approximate semester long duration.

#### CPT Report:

A detailed report is necessary if the student is planning to use the credits toward graduation. The report will document "learning experiences" and not simply describe/detail the tasks/projects worked on. Students that do not clearly demonstrate learning will receive an "Unsatisfactory" grade. There is no particular format for preparing the report. Typically, 3-credit internship reports are relatively substantial at 25 to 30 typed pages (with 1 to 1.5 line spacing). A 1-credit internship report will be approximately 8 to 10 pages. You are expected to provide detailed learning experiences. Typically, the report is due with the advisor at least three weeks before the semester ends. While the grades will be assigned by the chosen advisor at the end of the term, it is the responsibility of the student to ensure that a copy of the report is included in the student's official folder with the Graduate Student Advisor (i.e., Ms. Gail Evans). These reports will once again be checked while certifying graduation requirements. STUDENTS NOT PLANNING TO USE THE CREDITS FOR GRADUATION ARE ONLY REQUIRED TO PREPARE A SHORT SUMMARY REPORT NOT EXCEEDING TWO PAGES. In both cases, the grade is always Satisfactory (S) or Unsatisfactory (U).

## Faculty Information

Faculty:	Office:	Research Interests:	Telephone:	E-mail Address:
Dr. Kenneth R. Chelst <i>Department Chair</i>	2149	Decision and Risk Analysis for Technical Managers, Globalization of Engineering, Manufacturing, and Management, Applied Operations Research.	313-577-3857	<a href="mailto:kchelst@wayne.edu">kchelst@wayne.edu</a>
Dr. Ratna Babu Chinnam <i>Graduate Chair (other than EMMP Programs)</i> <i>Coordinator: Lean Operations Management Specialization</i>	2161	Supply Chain Management, Intelligent Manufacturing, Process Optimization, Machine Diagnostics & Prognostics, Computational Intelligence, and Cross-Disciplinary Research.	313-577-4846	<a href="mailto:r_chinnam@wayne.edu">r_chinnam@wayne.edu</a>
Dr. Darin Ellis <i>Undergraduate Chair</i>	2145	Human Factors Engineering, Human Performance, and Aging.	313-577-2297	<a href="mailto:rdellis@wayne.edu">rdellis@wayne.edu</a>
Dr. Julia Gluesing	2173	Business Anthropology, Diffusion of Innovations, Virtual Teams	313-577-1383	<a href="mailto:j.gluesing@wayne.edu">j.gluesing@wayne.edu</a>
Dr. Kyoung-Yun Kim <i>Coordinator: Computer Integrated Manufacturing Specialization</i>	2067	Product Development, Collaborative Assembly Design, and Tele-rehabilitation	313-577-4396	<a href="mailto:kykim@wayne.edu">kykim@wayne.edu</a>
Dr. Olugbenga Mejabi <i>Coordinator: Manufacturing Systems Specialization</i>	2157	Flexible Manufacturing, Simulation, and Factory Control.	313-577-3134	<a href="mailto:mejabi@mie.eng.wayne.edu">mejabi@mie.eng.wayne.edu</a>
Dr. Leslie Monplaisir <i>Director: EMMP Programs</i> <i>Coordinator: Integrated Product Engineering Specialization</i>	2163	Collaborative Product Development, Computer-Integrated Manufacturing, Supply Chain Management	313-577-1645	<a href="mailto:leslie.monplaisir@wayne.edu">leslie.monplaisir@wayne.edu</a>
Prof. Alper Murat	2051	Supply Chain Management, Supplier Selection and Contract Design, Transportation and Logistics	313-577-3872	<a href="mailto:amurat@wayne.edu">amurat@wayne.edu</a>
Dr. Namkyu Park	2143	Cross-Disciplinary Research, Agile Enterprise Computing, Supply Chain Management, Design Informatics and Bio-inspired Systems, Knowledge Management, Manufacturing Innovation Strategy.	313-577-0862	<a href="mailto:namkyu@wayne.edu">namkyu@wayne.edu</a>
Dr. Frank Plonka	2167	Agile Enterprise Systems, Technology Management, and Architecture for Production Control.	313-577-9665	<a href="mailto:fplonka@mie.eng.wayne.edu">fplonka@mie.eng.wayne.edu</a>
Dr. Ken Riopelle	2149	Diffusion of Innovations, Virtual Teams, Text Mining, Social Network Analysis, Computational Linguistics and Customer Satisfaction.	313-577-1752	<a href="mailto:riopelle@teamcci.com">riopelle@teamcci.com</a>
Dr. Nanua Singh	2155	Product Development, Reliability and Quality Engineering, and Concurrent Engineering.	313-577-7586	<a href="mailto:nsingh@mie.eng.wayne.edu">nsingh@mie.eng.wayne.edu</a>
Dr. Gary S. Wasserman <i>Coordinator: Quality Mgmt. Specialization</i>	2169	Reliability & Robust Design, SPC, and Leading Edge Computer-Intensive Applications in Applied Statistics.	313-577-3301	<a href="mailto:gwasserm@wayne.edu">gwasserm@wayne.edu</a>
Dr. Kai Yang <i>Coordinator: Quality Engineering Specialization</i>	2151	Robust Engineering, Quality Engineering, and Operations Research	313-577-3858	<a href="mailto:kyang@mie.eng.wayne.edu">kyang@mie.eng.wayne.edu</a>