M.S. in Industrial Engineering

Degree Requirements

Students who do not have a bachelor of science degree in industrial engineering may be admitted and required to complete the bridge program. Bridge courses do not count toward degree requirements.

A minimum of 30 credits beyond a baccalaureate degree is required. A master's thesis or independent research is optional. Students select an area of specialization and individually design their programs in consultation with the graduate advisor. Faculty advisor approval must be obtained by students before they are permitted to register for IE 701 Master’s Thesis.

Seminar: In addition to the minimum 30 degree credits required, all students who receive departmental or research-based awards must enroll each semester in IE 791 Graduate Seminar.

M.S. in Industrial Engineering (courses only)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
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<tr>
<td></td>
<td><strong>Bridge Courses</strong></td>
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</tr>
<tr>
<td>EM 502</td>
<td>Engineering Cost Analysis</td>
<td>3</td>
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<tr>
<td>EM 602</td>
<td>Management Science</td>
<td>3</td>
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<td>IE 501</td>
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<td><strong>Core Courses</strong></td>
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<tr>
<td>IE 604</td>
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<td>IE 621</td>
<td>Systems Analysis and Simulation</td>
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<td>Advanced Topics in Operations Research</td>
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<td></td>
<td><strong>Areas of Specialization</strong></td>
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<td></td>
<td><strong>Quality Systems Engineering</strong></td>
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<tr>
<td>IE 672</td>
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<td>IE 673</td>
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<td>MNE 654</td>
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<td><strong>Operations Research</strong></td>
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<tr>
<td>CS 631</td>
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<tr>
<td>EM 655</td>
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<tr>
<td></td>
<td><strong>Supply Chain &amp; Logistics</strong></td>
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<tr>
<td>IE 642</td>
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<td><strong>Service Systems Engineering</strong></td>
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1 Students may choose to specialize in any one of the following areas. Completion of all three courses in a specialization will qualify the student for a specialization certificate to be issued by the department. This will be awarded in conjunction with successful completion of the MS degree.
### M.S. in Industrial Engineering (independent research)

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Select three of the following: ¹

| Quality Systems Engineering                          |         |
| IE 672  | Industrial Quality Control                 |         |
| IE 673  | Total Quality Management                   |         |
| MNE 654 | Design for Manufacturability               |         |

| Operations Research                                   |         |
| IE 651  | Industrial Simulation                       |         |
| IE 704  | Sequencing and Scheduling                   |         |
| IE 650  | Advanced Topics in Operations Research      |         |

| Information Systems Design                           |         |
| CS 610  | Data Structures and Algorithms              |         |
| CS 611  | Introduction to Computability and Complexity|         |
| EM 655  | Management Aspects of Information Systems   |         |

| Supply Chain & Logistics                             |         |
| IE 642  | Network Flows and Applications              |         |
| IE 699  | Special Topics in Industrial Engineering    |         |

| Service Systems Engineering                          |         |
| IE 651  | Industrial Simulation                       |         |
| MIS 648 | Decision Support Systems for Managers       |         |
| **Total Credits**                                    | 24      |

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<td>or IE 701C</td>
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